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THE MEDICAL PROFESSION AND THE WAR— THE CANCER PROBLEM

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AT a time like the present when such momentous events are happening day by day on the Continent of Europe, and the destinies of the nations of the world are trembling in the balance, most of us find it extremely difficult to concentrate our minds on any subject which is not directly or indirectly connected with the war. This is not to be wondered at when we consider that it is by far the most terrible conflict recorded in history, the result of which will influence the future course of events throughout the whole of the civilized world. The state of things in Europe has been recently very vividly brought home to us in Canada, owing to the fact that so many of us have already lost those near and dear to us on the battle-field or in that great tragedy of the sea, the sinking of the *Lusitania*, but we rejoice to know that our soldiers have worthily upheld the traditions of our race, and that this country has reason to be proud of her sons.

In no previous war has the medical profession, not only of the British islands, but also of the overseas Dominions, played such an important part, and there has been everywhere a prompt response to the demand of the army for civilian surgeons to supplement the work of those belonging to the service. Many of the senior students in the various medical schools also volunteered for employment as dressers.

As you all know the response from those of our profession in Toronto has been most gratifying. The Army Medical Service of the First Contingent took many of the Fellows, and with the

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subsequent contingents, Clearing Hospital and University of Toronto Base Hospital, there has been an increasing depletion of our ranks. Sixty-one Fellows of the Academy of Medicine are now on active service. The medical student body of Toronto University has not been behind in their response to the call. Of the undergraduates in medicine, six officers and eighty-eight men have gone, while there are two hundred and fifty-two men serving from the graduate body of the Faculty of Medicine.

You will remember that very soon after the beginning of the war the Fellows of the Academy of Medicine pledged themselves as a patriotic duty to undertake without charge the professional care of the needy dependents of any men serving with the allied armies during the war now going on; and you have this evening listened to the report of the Patriotic Relief Committee, and can realize how well and truly that pledge has been supplemented by the Fellows of the Academy. From the report of the Hospital Supplies Committee you have also learned how very active the Fellows have been in this matter.

From all parts of the country came offers from private individuals of accommodation for invalid soldiers and sailors, and of large country houses to be used as convalescent homes for the sick and wounded. Australia, New Zealand, South Africa, India, and our own Dominion of Canada, have given splendid and magnificent assistance in hospital equipment and personnel, and in the sermon preached by the Archbishop of Canterbury at St. Paul's Cathedral on August 4th, the anniversary of the declaration of war, he says that "the temper of the whole of the British Empire has been worthily reflected by Medicine. A firm resolution to endure to the end and a hope for the victory of the right are displayed in the hearty coöperation between our citizens in all parts of the world in the medical conduct of the war." The United States has also done much to help in the treatment of our wounded soldiers, and has made generous contributions in the shape of hospital equipment and personnel.

The war can scarcely fail to have a more or less arresting effect upon medical progress in some directions, in view of the fact that in all the countries concerned so many men engaged in medical investigation and research have, at any rate for the time being, been called away from their work. The interruption to the exchange of scientific data is also a serious obstacle to progress. Many medical meetings which were to have been held during the present year have been postponed. The next International

Congress which was arranged to meet in Munich in 1917, has suspended the work of organization, and in the *Deutsche Medizinische Wochenschrift* there is an editorial to the effect that it is probable that the feelings of hatred excited by the war will not have died out by that time, so that it would be difficult to welcome representatives of the countries now fighting Germany with any degree of cordiality. In fact, Germany seems to be preparing for isolation from the external medical world, and it is announced that the German scientists have commenced a campaign against all medical works of English, French and Russian origin, and that a committee is to be formed for the purpose of framing a purely German medical nomenclature.

This isolation from the rest of the world may not be an unmixed evil if the opinion expressed by Dr. Greely in the *Boston Medical and Surgical Journal* of September 10th, 1914, is correct, namely, that in Germany the scientific side of medicine is over-developed, whilst the human side is greatly neglected.

The sublime ignorance of the facts in regard to the origin of the war shown in the extraordinary manifesto issued towards the end of last year by the German Intellectuals including such names as the late Professor Ehrlich, some of the assertions in which are in direct opposition to the statements contained in the German White Book, cannot fail to discredit German science. Can we ever trust the German scientists again?

Soon after the beginning of the war we began to realize how dependent we are upon Germany for the supply of certain drugs, in the manufacture of which she had acquired a monopoly. These included a large number of extremely valuable drugs, which had displaced many of the older remedies, such as the whole range of synthetic drugs, analgesics, antipyretics, alkaloids, salicylates and potash salts. The fact that Germany possessed a monopoly in the manufacture of aniline dyes has caused a very considerable inconvenience. The manufacture of many of these products had originated in Britain, but had afterwards been applied by German manufacturers. One of the chief difficulties in manufacturing them ourselves was that hitherto Germany had had an exclusive supply of the raw material required. There has since been considerable progress in the manufacture of the products formerly supplied by Germany, but there are still many difficulties to overcome before this industry is established on a satisfactory basis.

It is sometimes asked if war offers any compensations for the harm it undoubtedly does in hindering the advance of science?

Much has already been learned in regard to the proper treatment of septic wounds, and as to efficacy of inoculation in the prevention of the diseases which have in previous wars caused more deaths than the actual battles themselves. The vigorous efforts taken in Serbia by the British and American doctors have been so successful that typhus, relapsing fever, cholera and smallpox are now almost stamped out, and so far the health of our troops in France, in England and at home has been extraordinarily good.

At the end of the first year of the war it may be said that the value of the medical work in the army cannot be too highly estimated, and the practical absence of epidemic disease and efficient sanitary organization has meant a gain of innumerable lives to the allied armies. The heroism of the troops in battle has been equalled by that shown in the hospitals, and the wounded have been attended with courage, assiduity and success, often under the most trying circumstances. Very warm tributes have been paid to the courage and professional efficacy of the Medical Corps by the highest military and political authorities. They all agree that the medical men have rendered most heroic services, and that their courage and devotion is beyond all praise.

I quote the following paragraph from the *Daily Mail*, which appeared soon after the battle of Neuve Chapelle: "A bright page in the story of British heroism in the battle of Neuve Chapelle is the conduct of the doctors. As always they distinguished themselves by their fearlessness under fire and their gallantry. Their losses were heavy for they exposed themselves without thought of danger."

Amongst the results of the war which are of special interest to us in Ontario is the establishment of medical reciprocity between Ontario and Great Britain. This became necessary on account of the necessity for those holding the license of the College of Physicians and Surgeons of Ontario to go with the Canadian contingents to Great Britain and France, and therefore to work under the War Office. The Council of the College passed the enabling legislation in December last, the Lieutenant-Governor subsequently giving the royal assent. In the *Lancet* of September 4th, a notice appears from the Registrar General of the Council of Medical Education and Registration of the United Kingdom containing the following paragraph: "That any person holding the license or membership of the College of Physicians and Surgeons of Ontario, granted after examination in medicine, surgery and midwifery, together with a license to practice in that province, shall be entitled to register in the

Colonial list of the Medical Register, providing he satisfied the Registrar regarding the other particulars set for in Part 2 of the Medical Act, 1886. Degrees in medicine granted by the Queen's University, the Western University and the University of Toronto may so be registered as additional titles provided they are registered in Ontario."

It has been assumed by some that this war is likely to result in an enormous amount of more or less permanent nervous and mental suffering and incapacitation amongst the soldiers, but although there is no doubt that a certain number of them became unnerved by the horrors of the battle-field, time has shown that a large proportion of these recover after rest and suitable treatment. In an address recently given by Lord Bryce he states that the effect of the fighting on thousands of our men has been to sober them, to stir their deepest thoughts, and inspire them with an urgent desire for a more idealistic basis of living, and he holds that the spectacles of millions of men abandoning home, family, ambition and money, and laying down life for a principle is so glorious as to transfigure the pictures of mangled bodies and human beings gasping in the dark struggle against death. He believes that one of the eventful results of the war will be the great decrease in the amount of mental instability, and that people will return to a simpler life, partly from choice and partly from necessity.

Another fact of importance which we may here mention is that neurasthenia and other neurotic conditions are apparently becoming much less common, in spite of the anxiety and strain resulting from the war. This is not difficult to understand, as the experience of most people who have been accustomed to the treatment of nervous conditions indicates that it is not so much the great tragedies of life which are apt to upset the equilibrium of the nervous system but small daily worries persisting for long periods of time, and above all lack of occupation and interest in life.

This war is certainly affecting the Fellows from a pecuniary point of view in that many people who have been accustomed to employ physicians and pay the ordinary fees can no longer afford to do so. The extent to which the war has affected the medical profession in this respect varies in individual cases, but there certainly seems to be no doubt that consultants and specialists are suffering more than the general practitioners, who in a few cases are benefiting more or less, due to so many of their colleagues having taken up military work of some kind.

Now as to the progress of the Academy since the last regular

meeting was held, I may say that 27 new men have been elected so that counting in the 61 who are at present overseas the total number of resident Fellows is 404, non-resident Fellows 42, life Fellows 5 and honorary Fellows 4, making a total of 455. Ten additional names will be submitted at the next council meeting for election, and it is our earnest hope before the close of this Academy year the total fellowship may come up to the 500 mark by the adhesion of a number of very able men in Toronto who have signified their desire to join with us.

THE CANCER PROBLEM

Until comparatively recently it was believed that cancer occurred only in human beings, but the researches which have been carried out have demonstrated the fallacy of the opinion, and it now appears to be definitely established that both benign and malignant growths may develop in any multicellular organism. In the report of the Imperial Cancer Research Fund, Bashford and Murray state that the results of their investigations indicate that all the histological types of cancer have been recognized both in domesticated and wild animals, although in the latter it is comparatively rare. As regards the domestic animals, it is most common in dogs, but it has also been observed in horses, cows, donkeys and cats, and a few isolated cases have been observed in pigs, sheep and goats. In domestic birds such as hens and geese, it is fairly common, and the same applies to fish, more especially when they are artificially bred. It is much more rare in wild animals and birds, although there is evidence to show that they are by no means exempt from it.

As regards man, there is no doubt that it is one of the most terrible diseases which afflict the human race, and that it is responsible for a very large proportion of the deaths from disease in general. Whilst it is unwise to over-estimate the value of statistics, there is no doubt whatever that the endeavours which have been made during the last few years to obtain more accurate statistics in regard to cancer and its mortality have given most valuable information in regard to its geographical distribution, the comparative frequency with which it affects the different organs of the body, and the apparent influence of various occupations on its incidence. The results of these researches indicate that the view which formerly prevailed that cancer affected only civilized races, and that those living under primitive conditions of life and in certain climates were exempt from it, has no foundation in fact, and that

it is prevalent to a varying extent amongst all races of the world and in all climates.

As regards the mortality of the disease, a study of the English statistics shows an alarming increase in the fatalities from it during the last few decades. In 1840 the reports show that one person in 5,646 of the total population of the country died from malignant disease; there was one death from it in every 129 deaths recorded, and there were 117 deaths due to cancer per million of the population. On comparing these figures with those for the year 1906 we find that one person in 1,131 of the total population died from malignant disease; that there was one death from it in every 17 deaths recorded, and that there were 885 deaths due to cancer per million of the population.

On the continent of America we also see a corresponding increase in the death rate from cancer. In New York the death rate from malignant disease in 1913 was 82 per 100,000 of the total population, whereas from the previous five years the average was 79 per 100,000, in Boston it was 118 per 100,000 as compared with an average for the previous five years of 110 per 100,000; in Pittsburg 79 per 100,000, as compared with 70 per 100,000 for the previous five years; in Baltimore 105 per 100,000 as compared with 94 per 100,000 for the previous five years; in Chicago 86 per 100,000 as compared with 81 per 100,000 for the previous five years; in Philadelphia 95 per 100,000 as compared with 88 per 100,000 for the previous five years; and in St. Louis 95 per 100,000 as compared with an average of 85 per 100,000 for the previous five years. The mortality statistics for the whole of the United States give in 1900 a death rate from cancer of 63 per 100,000 of the total population, in 1904 of 70.2 per 100,000, in 1909 of 73.8 per 100,000, and in 1912 of 77 per 100,000.

As regards Canada we find that in our province of Ontario the annual death rate from cancer has increased from 1,253 in 1904 to 1,806 in 1913. This last figure is a fraction above four times as many as those from typhoid fever in the same year, and very nearly as many as those from pulmonary tuberculosis, which claimed 1,955 victims in 1913.

Werner, who has made an investigation of the vital statistics of Baden, states that during the last twenty-five years the yearly number of deaths from cancer has increased by about one third in this part of Germany. Bertillon, who has made a similar investigation in regard to France and most of the other countries of Europe, states that it has been doubled in frequency during the last thirty years.

These figures are certainly alarming, and it is therefore not to be wondered at that a considerable amount of attention has recently been devoted to the problem of the most effectual means of diminishing the incidence and mortality of cancer. At the same time it should be borne in mind that there are certain factors which tend to modify this increase in mortality, and indeed some writers go so far as to say that in their opinion it is only apparent and not real. These modifying factors include the imperfections in the systems of vital statistics which are employed in different countries, and the recent improvements in methods of diagnosis of cancer and other diseases, which renders it probable that an accurate diagnosis is made of malignant disease much more frequently than was formerly the case. Further, it is a generally recognized fact that cancer is more apt to develop in people over forty years of age than in younger individuals, and as the average duration of life has increased, it follows that a larger proportion of people now live to attain this age. But even when due allowance is made for scientific progress and the changes in modern conditions of life there seems to be no doubt that the mortality from cancer is steadily increasing, and that if this increase cannot be checked its ravages in the future will be terrible to contemplate.

The problem of cancer is therefore one of vital importance to humanity in general, both from the point of view of prevention and treatment. Societies have been formed in practically all civilized countries in the world with the object of carrying out scientific investigations to determine its ætiology, but so far although the hypotheses advanced in this connexion have been manifold, very little light has been thrown upon it. The quest for its causative agent is analogous to that which was persevered in for so many years without result in the case of tuberculosis, and was at length rewarded by the discovery of the tubercle bacillus. We still remain more or less in the dark with regard to cancer, but there is no doubt that some day in the near or distant future this problem, which is now occupying the attention of so many of our greatest scientists, will also be solved.

Contrary to many popular ideas, the investigations of the Imperial Cancer Research Fund have shown that cancer is prevalent amongst both civilized and uncivilized people, amongst all races of mankind and in all climates. It has often been assumed that certain countries, such as India, China and Japan, are comparatively immune to malignant disease, but the results of recent researches indicate that it is by no means so rare in those countries as has

generally been supposed. Indeed, the Japanese statistics for the four years from 1899 to 1903 give the average death rate from it as 0.49 per 1,000, which is higher than that of some of the European countries. Werner and Bertillon have published some interesting statistics with regard to the geographical distribution of cancer. Werner found that its prevalence appeared to be independent of climate, geological or similar conditions, and that areas in which it was very common and comparatively rare were frequently situated close to one another. In some instances it was rare in districts in which the proportion of the inhabitants over fifty years of age was small, and common in those in which there was a comparatively large proportion of individuals of advanced age. Bertillon found that it was much more common in the north than in the south of France, and that in the area of greatest mortality from this disease, which is situated around Paris, the mortality from it is from three to four times as great as in other parts of the country. The statistics of deaths from carcinoma in other European countries show that the mortality from it in the Mediterranean countries in the year 1906 to 1907 was less than half that in the others. While it is probable that some definite peculiarities are at the basis of the differences in the geographical distribution of cancer, they have so far not been discovered.

I do not propose here to discuss the many theories which have been advanced from time to time to account for the origin of cancer, none of which affords a satisfactory explanation of the nature of malignant disease. The fact, however, that we are up to the present ignorant of its actual cause does not prevent our attacking the problem from the standpoint of prevention and cure. The researches which have been carried out have definitely shown that there are certain predisposing causes, the most important of which is chronic irritation of various kinds, dependent upon mechanical, physical, thermal, chemical or other irritants. In some exceptional cases which have been reported the irritation has not been chronic, but has been the result of a single trauma. In addition to local predisposing causes there appear to be certain constitutional peculiarities, which lower the resistance of the organism to this particular disease. Experimental work in mice and other animals has shown definite constitutional susceptibility to cancer, both of the natural and acquired type. People who follow certain occupations are also known to be especially liable to the development of malignant disease. The fact that we now know that such predisposing cause are influential in setting up cancer indicates the desirability

of keeping a careful watch for them, and more especially of removing all sources of chronic irritation, where it exists, and of all benign growths which are being subjected to irritation.

There seems therefore to be no doubt that chronic irritation sometimes of long duration followed by what may be termed a precancerous condition, does in a very large proportion of cases precede the development of cancer. This is most clearly seen in cancer of the skin and mucous membranes, a very striking instance being the development of cancer of the tongue on the basis of leucoplakia. Von Brunn was able to determine previous chronic irritation in 328 of 368 cases of superficial cancer which came under his observation. Lesions of the skin from which cancer may develop include warts, certain varieties of pigmented moles, chronic ulcers, sinuses and old scars from burns. With regard to the internal organs the connexion between chronic irritation and cancer is not so easily demonstrated, and there is considerable difference of opinion as to the influence in this connexion of ulcer of the stomach, gall stones and urinary calculi.

As has already been said, the increased incidence of cancer affects mainly the higher age periods, and in the majority of cases it develops in individuals over forty years of age. It is said that after the age of forty, one woman of every seven and one man of every eleven, dies from cancer. The age of the patient is therefore of importance in making a diagnosis of malignant disease, and symptoms, which in people of an earlier age, may possibly be of slight significance, increase in importance as age advances. For example, vague and indefinite symptoms of gastric distress in a man of forty-five should not be ascribed to mere functional derangement without the most careful and thorough examination, with a view to excluding organic disease. Cancer below the age of thirty-five is rare, but it has been met with exceptionally in much younger individuals.

It is a well known fact that certain organs of the body are more liable to develop cancer than others, this predisposition of definite tissues varying according to sex. Thus in men the following are attacked in order of frequency: stomach, liver and gall-bladder, rectum, intestines, œsophagus, tongue, jaw, mouth, lip and breast. In women the order of frequency is as follows: uterus, breast, stomach, liver and gall-bladder, intestines, rectum, œsophagus, bladder and urethra, face, tongue, jaw, mouth and lip. Cancer of the uterus and that of the female breast form by far the largest percentage of all cancers. The increase in the incidence of cancer as a

whole, however, during recent years applies chiefly to cancer of the stomach and rectum, whilst that of the female genital organs has remained practically stationary, and is even said by some writers to be diminishing in frequency.

The investigations which have been carried out do not indicate that environment has much influence upon the incidence of cancer. The one exception to this general rule is that in certain occupations there appears to be a tendency of special parts of the body to the development of precancerous or cancerous conditions owing to exposure to chronic irritation. This applies especially to workers in coal tar, soot, petroleum and aniline dyes. The returns of the Registrar General for England and Wales shows that the greatest mortality from cancer occurs in chimney-sweeps.

It is therefore beyond all doubt that malignant disease is on the increase. What is then the duty of the medical profession? Scores of workers are seeking the etiology of cancer. Others are devoting themselves to the discovery of some sure method of diagnosing the disease early enough to make our present treatment more potent. Still another band of scientists is searching out new remedies and methods of treatment, or improvements of those we already have. Till one or all of these groups is successful, the great body of the medical profession must be content *first*, to educate the public as to the early symptoms of the disease, so that the patient will present himself to the physician while the growth is removable and, *second*, to use every known means to diagnose carcinoma when these patients come to him.

We must look forward to the time, not far distant, when the laity are going to take as active a part in the campaign against cancer as they now do in the treatment and prevention of tuberculosis. I trust that when the public do become fully aroused to the dangers of this disease, the medical profession may be in a position to lead them up to the sanctuary of cure.

AIDS IN THE DIAGNOSIS OF SURGICAL CONDITIONS OF THE STOMACH WITH ESPECIAL REFERENCE TO THE CHARACTERISTIC X-RAY APPEARANCE OF THE SYPHILITIC HOUR-GLASS IN CONTRAST TO THOSE OF SIMPLE ULCER AND CANCER.*

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IT is unusual for a medical man to present a paper on the diagnosis of surgical conditions. It seems only fair, however, that we should adopt such retaliation, particularly when the trouble concerns the abdomen, because our surgical friends consider this region their especial province, and their opinion a sort of court of first and last appeal. We grant at once that all the following diseases are or may be surgical: cancer, sarcoma, benign intragastric tumors; ulcers and their complications, and in rare cases syphilitic ulcer.

I wish to emphasize the value, in diagnosing these conditions of the stomach, of some of the old and well-tried methods and tests. There are many valuable aids that I shall not refer to. One purpose is to stimulate in some degree, if I can, a return of your interest to these methods in general; and not only those which apply to affections of the stomach. It has been said that if we would enforce such laws as we have we should fare better than by ever legislating new laws: so, I believe, if we would only use our well-tried clinical tests, we should have less room for a multiplicity of new ones. On the other hand, any new test, preëminently good, should be added to our old stock. It is not only the older of us who have seen, time and time again, new methods heralded as a finalty, but later cast aside as unfit. So many new tests cause perplexities and tend to shake the physician's confidence in himself and his ability to make diagnoses; but this need not be if he

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would apply his knowledge of common methods, and now and then learn some of the newer tests.

Cancer is the most fatal and dreaded of all diseases of the stomach, and it is most important to determine its presence in the early stages, when it is amenable to surgery; further, many cases of cancer which in the recent past have seemed hopeless surgical risks are now considered operable.

How can we make an early diagnosis? A carefully elicited and interpreted history is very important, often the most important evidence; but, sometimes, the symptoms manifest themselves suddenly and the disease is already advanced when these appear,—perhaps an inoperable growth already exists when the history begins, and with our present knowledge we can offer no hope of cure in such a case. Often symptoms occur early in the disease, and with a good history and physical examination, and a careful application of the simple tests, we may frequently diagnose the disease in the curable stage. If we cannot conclude by such methods, we should use every other means possible,—lingering doubt may be fatal to the patient.

Latent cases of cancer are illustrated by the following: A vigorous appearing man fifty-six years old, always previously well, was taken sick at a picnic with nausea and epigastric distress, he was not relieved and in a few days began to vomit. Two weeks passed with no relief; he called his physician who, upon washing out the stomach, found blood and absence of free HCl. Three more weeks passed, the patient continuing to vomit, losing blood and becoming anæmic and weak. He was urged to have an exploratory examination. Further treatment with absolute rest in bed did not improve the symptoms, and operation was done by Dr. William Jason Mixter, of Boston, who found a malignant growth occluding the pylorus. A posterior gastro-enterostomy was performed. Gastrectomy was thought inadvisable, both on account of the extent of the growth and the much weakened condition of the patient. I could cite similar cases illustrating absent or unnoticed symptoms of cancer but they are chiefly in the upper portion or fundus of the stomach—the pylorus not being involved.

When a previously healthy middle-aged person develops intractable dyspepsia, it indicates cancer, and the physician should, without waiting, exhaust all means at his disposal in arriving at the cause of the trouble.

It is remarkable to what extent a cancerous growth may invade the stomach without attracting the attention of either patient or

physician to this organ, as the following shows: A woman, aged fifty-four, always well, immediately following an attack of seasickness, began to have fulness in the stomach after eating, soon followed by cramps in the bowels and loose movements. No pain in stomach; no vomiting. Appetite good, but amount and kind of food restricted because of epigastric fulness after eating, but chiefly because of cramps in bowels and diarrhoea. She would eat "five or six times a day and still be hungry." *Meats* of all kinds agreed best, also dry bread and toast and cold water—hot drinks distressed as did also milk, and eggs especially. She could eat few vegetables and "no fruits except strawberries." At the end of a year and a half she had lost thirty pounds in flesh, symptoms continuing about the same. At this time two specimens of *fæces* gave strong positive reactions for occult blood both with benzidin and guaiac. Patient refused to leave home for investigation of condition. Four months later she had lost in all forty pounds—weight eighty-six pounds; Hb. 70 per cent. Though emaciated, she had fair strength and could go about the house. There was a small movable mass in the epigastric region above and to right of navel; no abdominal tenderness anywhere, and no enlarged glands. No ascitic fluid was noted. Twenty minutes following Ewald test breakfast, only 2 c.c. or 3 c.c. of contents was obtained, showing no free HCl, but combined acid, and trace of occult blood with benzidin. *Fæces* showed *no occult blood with guaiac* and only *a slight positive reaction with benzidin*. X-ray showed a long uniform tube about one and one-half inches in diameter representing the stomach, and in six minutes following ingestion of bismuth this had nearly reached the cæcum—no peristaltic waves were seen in the tube-shaped stomach except in tip of antrum. Diagnosis: Diffuse cancer of stomach wall. Exploratory operation by Dr. Torr W. Harmer, of Boston. Escape of pale coloured fluid—not blood tinged—on opening abdomen; stomach long and rather tubular; running whole length of lesser curvature and surrounding pylorus, and extending two-thirds way along greater curvature was a hard, smooth, infiltrating tumour mass of dull pearly white and coursed by unusually few blood vessels,—a blanched appearance. Posterior wall was equally involved and so firm and incompressible that the stomach was converted into a rigid tube or trough; there were many glands in the gastrocolic omentum and some infiltrating growth; omentum was practically devoid of fat but very vascular. No masses in liver. Operative measures either not justified or not feasible.

This history, like the previous one, emphasizes the importance

of considering cancer when there is a sudden onset of persistent stomach or bowel trouble in a healthy person of middle age. It is remarkable that meat should have been craved by the patient when meat is usually repugnant to those suffering from cancer of the stomach,—it is so frequent as to be considered pathognomic. Though cancer may reach advanced stages without pain, it is uncommon to find it so when the disease has invaded the peritoneum. Demonstrable free fluid ought to prohibit exploratory operation looking towards gastrectomy, but it was not detected before operation in this patient. This record shows, too, the possibility of a *negative guaiac* for occult blood in the stomach contents as well as in the *fæces*, *in the presence of advanced cancer*. There was no blood in the aspirated stomach contents partly because this was obtained from the stomach cavity above the cancer, and none in the *fæces* because of the scirrhus type of growth. There was no cachexia in this case of advanced scirrhus cancer of the stomach, and there had been looseness of the bowels from the beginning of the symptoms. The cachexia in cancer is chiefly due to the hæmolytic product of the growth, and if the bowels are free, in cancer of stomach or bowel, the poison is, to a certain extent, eliminated. I have observed this association before and wonder if it is fairly constant. It is known that cancer and a history of constipation are usually associated.

The absence of free HCl is suggestive of malignancy, *especially if there be still combined acid present*. It is rare to find achylia,—absence of free as well as combined HCl and the enzymes,—in cancer of the stomach even in late stages. When we do find "achylia gastrica" with absence of occult blood in the stools, in fact, whenever *we repeatedly find the fæces blood-free* by such a delicate test as the benzidin, we may be pretty sure we are not dealing with cancer of the gastro-intestinal tract. We do find normal acidity in cancer, particularly in early cases, even hyperchlorhydria has been reported, but I have never seen a case and they are very rare. The lactic acid test is of some value; it is simple and quickly done and favours the presence of cancer.

Occult blood, (that is blood not seen by the naked eye and only evidenced by chemical or other means) is rarely absent either in the stomach contents or in the *fæces* in cancer of the stomach,—that is by the benzidin test, not always with the guaiac test. There is no occult blood in the achylia. (In testing for occult blood in the stools, be very sure the blood does not come from hæmorrhoids, and that the diet is absolutely blood-free, and that the bowels

have been emptied on beginning the diet. Do not depend upon one test, but make tests on three or four successive days. There are so many chances of error, we must be very careful in accepting a positive occult blood test from stomach contents obtained by tube.)

A gain of weight does not always decide against the presence of cancer. This may occur for a short time in some cases under proper treatment. Pain is a pretty constant symptom of cancer, and differs from ulcer in that it is little influenced by food, and may occur at any time during the day or night, and is often a constant Nemesis. As shown above, pain *may be entirely absent*, so we must not be misled by its absence.

Our greatest single aid in detecting cancer of the stomach, and in differentiating this from ulcer is the *x-ray*. It is not so easy, however, to differentiate cancer from syphilitic ulcer of stomach; and, I regret that even the *x-ray* may fail to detect cancer near the cardia,—two of the most expert *x-ray* specialists in America failed, on separate occasions, to demonstrate its presence in one of my patients. Exploratory operation was done here upon the findings of ordinary clinical methods, only to show a large inoperable growth. I know that some of our *x-ray* specialists would make strenuous objection to this statement, and reply that the *x-ray* was not at fault,—that the growth was shown but not interpreted. Even so, I believe that had the patient been *x-rayed* a month earlier,—when the growth would still be considered in an advanced stage,—no registered evidence would have occurred with our present *x-ray* methods, and therefore could not be detected. I am sure, though, this difficulty will be overcome by improvement in technique. We are in the profession to find out the cause of ills, and to cure them, and gladly accept aid from every source. What I have said is not intended to militate against the value of *x-ray* in cancer: in the lower two-thirds of the stomach, the *x-ray* examination ought to show cancer in every case, if properly done and correctly interpreted; further, *in the majority of cases*, it will detect cancer much earlier than we could hope by clinical methods. But what we most want at present is physicians sufficiently trained to scent the trouble afar, and not treat as simple dyspepsia what may be a serious ailment.

Another important point for consideration is, how can we determine when cancer of the stomach is surgical, and when inoperable? *X-ray* is an aid, but the chief means here are the ordinary methods and the experience and judgement of the clinician.

Opening the abdomen will, probably, never be devoid of risk, and we must strive to avoid unnecessary exploratory operations. Real cachexia or great weakness prohibits; weakness and a low hæmoglobin would prevent a gastrectomy, but not a gastrostomy nor a gastro-enterostomy (and here an anterior operation may be more feasible, and therefore is as good and much safer and quicker than a posterior operation). Demonstrable ascites, as a rule, ought to prohibit exploratory operation in cancer of stomach because it means malignant invasion of the peritoneum. In cases of cachexia we usually have advanced secondary growths, but even if not, gastrectomy would hardly be permissible though other operations might be. I believe in gastrostomies for obstructive cancers of the cardia, even though these patients may tell you that, had they their choice again, they would choose the short cut rather than prolong life by means of a gastric fistula.

A large palpable mass does not prohibit a radical operation, neither should the surgeon always desist from a gastrectomy because of enlarged mesenteric glands which cannot be removed, nor because he cannot get a big margin of apparently healthy tissue.

To show what seemingly desperate conditions may be operated upon and cured, I will refer to the patient of Dr. Farrar Cobb, of Boston. A man, forty-seven years old, had a large palpable mass in the epigastrium, typical of advanced cancer of the stomach. Exploratory operation was decided against, at first, but later done after earnest solicitation of the patient. An ulcerated cancerous mass, the size of an orange, and a smaller one nearby, occupied the middle of the stomach. As the stomach was free and the liver not affected, Dr. Cobb took a desperate chance and removed about two-thirds of the stomach, attaching the bowel to the portion left. After about twelve years the growth has not returned, and the patient is able to do hard labouring work. In recent years even more desperate cases than this have been reported, many showing excellent results and no return of growth.

I believe that, for the present, surgery should be the treatment in all early cancers of the stomach, but the reverse is true of ulcer of the stomach and duodenum; and some of us are not ready now, as in the recent past, to assign to surgery *even a majority of chronic ulcers* of the stomach. There is one especial exception to this statement: All acutely perforated ulcers are immediately surgical; and, I would like to emphasize the importance of every practitioner becoming familiar with symptoms of this emergency, so often overlooked with disastrous consequences. It is seriously reprehensible

to treat for acute indigestion a patient suddenly attacked with severe pain in the stomach, localized tenderness and spasm, until we are sure it is not perforated ulcer, appendicitis, gall-stones, or acute pancreatitis. A history of heartburn, sour eructations, epigastric distress and pain—in fact an ulcer history—is usually present, and will often decide us aright even after the abdominal signs become general and marked.

Now, what should we call chronic ulcer? How do we diagnose the condition, and when do we consider it surgical?

First, nearly all ulcers are chronic when seen by the physician, and I believe many of them get well under medical treatment. Abdominal operations upon patients following gastro-enterostomies for gastric ulcers (personal observations) have proved to me that even indurated ulcers do heal, leaving no appreciable evidence behind. In one case a gastro-enterostomy was done by Dr. A. J. A. Hamilton, of Boston, upon a man with a large indurated ulcer of the lesser curvature about two and one-half inches above the pylorus, and, three and one-quarter years later—absolutely well for the first three years—he was again operated upon by Dr. Charles L. Scudder for a peptic jejunal ulcer, but no evidence of the old gastric ulcer remained. In another case a gastro-enterostomy was done by Dr. Hugh Cabot for an indurated duodenal ulcer, in addition to a chronic perforating ulcer on the posterior wall of the stomach near the lesser curvature. There was little abatement of symptoms, and a year later the gastric ulcer was excised. At the second operation evidence of the duodenal ulcer had almost disappeared. For more than three years since the operation the patient has been quite free of stomach symptoms.

Some extremists among the internists are so convinced of the probability of ulcers healing that they would persist in the medical treatment of practically all ulcers,—that is, absolute rest, very frequent small meals, and ingestion of antacids at short intervals, with the belief that the ulcers will not only heal, but that the indurations and most contractures will disappear. I do not believe all this, but it is difficult to say, precisely, where the line should be drawn,—it is mostly a matter of good judgement: it does not seem likely that an ulcer of the stomach or duodenum with a history of twenty or thirty years duration can be cured with a month or two of medical treatment of any kind; especially would surgery seem the best remedy if persistent pyloric obstruction were not relieved after careful application of the medical measures to which I have referred, and whether or not we considered pylorospasm

the chief cause,—and in most cases of pyloric obstruction pylorospasm is a prominent factor.

Second, I believe the most important part of the investigation of ulcer and all gastric conditions is a careful anamnesis; roughly, I would put its value at about 50 per cent. of the evidence. Sometimes the first few statements made by the patient will contain the essential evidence for establishing a diagnosis; in others, only by repeatedly questioning the patient at various times are we able to elicit a good history; finally, there will be rare cases where the history gives no aid. Get the patient's own story first, with no more guiding than to aid in brevity. The ability to obtain and interpret a history increases with the physician's experience and knowledge; and the older physician need have little fear of being overtaken by the younger man if he is constantly observant of this and is careful of his other work.

Very important, I believe, are the laboratory examinations, notwithstanding that some have declaimed against them. We nearly always have hyperchlorhydria in ulcer, and usually associated with occult blood in the stomach contents or stools, or both. Occult blood is most inconstant: I once saw the washing of a stomach show no occult blood with benzidin, though there was present a large indurated ulcer, and the patient had even vomited blood two days before. Again, occult blood may be absent from the gastric contents obtained from above a constriction, as in an hour-glass due to cancer or ulcer. An examination of the fæces, too, often shows no blood in ulcer, and we should examine such specimens on three or more successive days. The finding of food elements in the fasting stomach, even if only microscopical, is strongly suggestive of pyloric stenosis, temporary or organic, especially if there be a history of having vomited food eaten on a previous day.

The physical examination in both ulcer and cancer sometimes gives negative findings. The epigastric tender spots and spasm of the recti are good contributory evidence when present; but, many times, I have been unable to palpate even large malignant growths when situated high in the epigastrium, and, as I have already stated, the *x-ray examination may not show such tumors in this locality*. Again, I have found masses in the epigastric region formed by a rolled-up omentum, or by an omentum attached to the base of an old ulcer, and in one case the tumor was formed by the edge of the liver which had become adherent to the base of the ulcer. In all these cases I decided against the diagnosis of cancer because of hyperchlorhydria, and each time chronic perforated ulcer was

proved by operation. Tenderness or pain over the lower dorsal and upper lumbar vertebræ (Boas' point and also Cruviellhier painful area) are valuable signs when present, indicating chronic perforated ulcer; these signs are present sometimes in cancer, but the pain differs in character. Such points help us to differentiate between primary stomach troubles and symptoms dependent upon diseased appendices and gall bladders and various other abdominal conditions.

The x-ray ought to show nearly all ulcers of the stomach but, as in cancer, I have seen them overlooked especially when near the cardia. I heard a well known and prominent roentgenologist remark that he could demonstrate all ulcers of the stomach that are surgical: I agree in great part, but would further add, *and show many that are not surgical.*

Finally, when are these chronic ulcers of the stomach surgical? I consider the following are surgical conditions: chronic pyloric obstructions not permanently relieved by rest, diet, alkalies and atropine; permanent hour-glass contractions of stomachs; rare cases where pain and distress, sour regurgitations and intractable dyspepsia do not yield to proper medical treatment but become intolerable; and, finally, ulcers which persistently have severe hæmorrhages. These ulcers involve the larger arteries, and a fatal hæmorrhage is liable to occur at any time, as I have witnessed. I believe the treatment should be excision or circular gastrectomy in such cases, and this without gastrojejunostomy, unless the pylorus is obstructed. With the exception of pyloric obstruction, and regardless of statistics, I am approaching more and more the belief that gastro-enterostomy alone is not the best remedy for ulcer. Let the surgeon resect the ulcer, if necessary, and omit the gastro-enterostomy, but let the internist advise the patient as to how to prevent the recurrence of the trouble. I am even strongly doubting that simple round ulcer is the usual precursor of cancer,—that such a large percentage of cancers of stomach, as figured out, are the result of simple ulcer. It may seem like egregious assumption to hold such a view in face of the Mayo statistics and those of others; but, one cannot be unmindful of personal experience. Such conviction may be untrustworthy and dangerous, but on the other hand statistics are dangerously dogmatic. Besides, all statistics do not agree here: de Quervain* of Berne, Switzerland, believes that "the most reliable data must

* de Quervain: *Annals of Surgery*, p. 272, No. 2, August, 1914.

be obtained from the further observation of patients subjected to gastro-enterostomy," and further states, "if we take into consideration that here the development of carcinoma is observed only in 2 per cent. of all cases from a very large series of figures, we may, at least, conclude that the carcinomatous degeneration of a round gastric ulcer is of relatively rare occurrence." He also quotes Duplant as affirming that cancers may assume, by ulcerative disintegration, certain features of a primary ulcer,—may simulate "carcinoma ex ulcere." There is, at least, ground for belief that carcinomatous degeneration from simple ulcer, under proper medical treatment, is no more to be feared than where gastro-enterostomy has been done without excision. Williams,* (of Bristol, England, and Fellow of the Royal College of Surgeons) in his excellent and too little read treatise, says: "The cumulative weight of these diverse indications against there being, as a rule, any ætiological connexion between gastric ulcer and gastric cancer, is so overwhelming, as to be practically conclusive; although, of course, I do not mean to deny that cancer may exceptionally originate from gastric ulcer."

Syphilis of the stomach is uncommon. I have seen five cases diagnosed as syphilis of stomach, two of which were operated upon. I have also seen gastric symptoms of other patients, in whom the Wassermann test was positive, disappear under antiluetic treatment. Syphilis of the stomach is only a surgical condition when an occluded pylorus, or an hour-glass contraction, does not return to normal conditions under specific treatment. *The first clue* to this lesion is a history of infection confirmed by the Wassermann test and the x-ray; and second, the improvement of stomach symptoms which follows antiluetic treatment. We usually have absence of free HCl with blood in the stomach contents and stools; but, in one of my cases there was mid-normal free HCl. The x-ray is most valuable as a differentiative test. The pictures I have seen did not show the moth-eaten appearance of cancer, and there is much more extensive involvement of the stomach wall than in simple ulcer. In syphilitic ulcer there seems to be a strong tendency to the production of hour-glass; and, in connexion with this hour-glass variety, I have noted a characteristic point which differentiates it from cancer and simple ulcer: *In syphilitic hour-glass of the stomach we see a long regular isthmus at each end of which the walls of the stomach rise more or less abruptly or dumb-bell like.* This is in contrast to

* Williams: "The Natural History of Cancer," 1908, p. 280.

the sharp incision of simple ulcer hour-glass with practically no isthmus; and the picture differs quite as much from the cancer hour-glass with the infiltrated walls of the stomach sloping irregularly away from the constricted portion.* I have referred to this peculiarity on a number of occasions, but have seen no similar observation in the literature, and hope it may prove a differential sign of some value.

The following is an illustration of syphilitic ulcer of the stomach when the lesion has reached an advanced stage: August, 1913—A woman age forty, (referred for investigation by Dr. G. W. T. Farish, of Yarmouth, N.S.), had been suffering for about a year with great epigastric distress and pain immediately after eating; sometimes the pain would continue all day without intermission. From the beginning there had been vomiting, sometimes immediately after eating, and sometimes two or three hours later. The vomitus showed little change in the food eaten, no blood. Bowels constipated. There had been progressive loss of flesh, and as much as twenty pounds in the last three months. There was, a good deal of the time, a terrible feeling of epigastric pressure and weight and gnawing, especially when lying on her back. *Physical examination:* Patient tall and emaciated; colour good; tongue clean; no enlarged glands detected anywhere. Abdomen was retracted with epigastric tenderness and an irregular mass in mid-epigastric region which descended on inspiration. The picture was that of ulcer of the stomach. *Blood:* Hb. 80 per cent.; reds 5,488,000; whites 5,400. One hour following a *test breakfast*, only 6 c.c. or 7 c.c. of stomach contents was obtained, containing only a crumb or two of bread, blood, and no free HCl. *Microscopical examination* showed pus cells, atypical tissue cells and Oppler-Boas bacilli. The *fæces* showed occult blood with benzidin. The stomach findings caused me to change my first impressions and to consider the condition malignant and probably inoperable. The patient was anxious to take the smallest chance by exploratory operation, and this was done by Dr. Charles G. Mixter, of Boston. The stomach showed a diffuse thickening; no enlarged glands felt and the liver was smooth. The stomach was opened and explored; the wall was thickened and the mucous membrane eroded. (Dr.

* The x-ray work of three cases, diagnosed as syphilitic ulcers, but not operated upon, was done by Dr. W. J. Dodd, of Boston. I am also much indebted to Dr. Dodd for the privilege of studying the plates of a fourth case at the Massachusetts General Hospital, and also to Dr. Charles L. Scudder for the courtesy of witnessing an exploratory operation on the same patient who had syphilitic hour-glass stomach.

Samuel J. Mixter who was present exclaimed, "it looks as though a rat had been scratching at it!") At the upper end of the stomach was a stricture-opening about the size of a lead pencil, rather diffuse. At the junction of upper and median third of the greater curvature is another stricture, apparently contraction of second ulcer. A partial gastrectomy was done removing one-third of the stomach, including the area involved in stricture and old ulcer. Cardiac portion brought down and sutured to lower portion of stomach. Inspection of the portion removed from the stomach showed the chief ulcer to be a serpiginous, shaggy ulceration which resembled no simple ulcer ever seen by any of those present, nor did it resemble cancer: syphilis was mentioned, but none present were familiar with this lesion in the stomach. Our present knowledge that free hydrochloric acid is absent (or usually so) in advanced syphilitic ulcer of the stomach is in itself practically confirmatory of this affection, because in simple ulcer we would, at least, have free HCl present, if not in excess. The patient made a fine recovery and improved generally.

A résumé of the pathological report by Dr. F. L. Burnett from the Pathological Laboratory, Massachusetts General Hospital, shows the following: "A mass of tissue representing about one-third of the cardiac end of the stomach. In the posterior wall there is a shaggy depression which has shaggy edges, and is dark red in colour. The tissue about it is firm. The section shows the tissue to be made up mostly of connective tissues which is thoroughly infiltrated with small round cells (lymphocytes). These cells show no particular arrangement. There are, also, a few homogeneous areas which evidently represent recent hæmorrhage. Then, too, there are places which show numerous blood vessels, and probably indicate a moderate degree of organization. There are, however, elsewhere, some vessels whose walls show a distinct thickening, and a few of which the lumen is entirely obliterated. The cells in themselves are for the most part connective tissue and lymphocytes; yet there are also a few leukocytes and endothelial cells, and occasionally a giant cell. There are no epithelial cells in the section. It is probably a simple ulcer but syphilis cannot be left out."

Following operation the patient improved in weight and strength and was soon eating soft solids. She was allowed to go home without a Wassermann test being made, and continued to improve for about two months when the old stomach symptoms re-appeared. By the last of November she felt so badly and failed

so much that she again consulted her physician who wrote that "she looked dreadfully and felt nearly as badly as before the operation." A blood specimen was taken and forwarded to Dr. William P. Boardman, of Boston, who reported the test strongly positive. It was not practicable to give the patient salvarsan at this time, but she was placed on the usual mercurial and potassium iodide treatment, and her stomach symptoms rapidly disappeared, and she gained in weight and strength. She came to Boston in 1912, and looked well and strong and well nourished. The Wassermann, however, was still strongly positive. She was given one salvarsan treatment and again given treatment of mercury and potassium iodide, but she refused further salvarsan injections. Since then, with this treatment, she has remained apparently well. (I regretted, exceedingly, that a Wassermann test had not been made at the time of the operation but this omission with the latter developments in the patient's case was further corroborative evidence of the luetic condition of the stomach. Had the patient been placed on specific treatment following the operation, this would not have been so evident). Unfortunately no *x-ray* was obtained in this case.*

A brief statement of the points I wish to make is this:

First: Physicians, by constantly training themselves to take and interpret histories, can detect a large majority of the stomach ulcers and cancers, and suspect many cancers in the early stages.

Second: Some physical examinations show nothing abnormal, though a grave lesion may be present in the stomach or other parts of the abdomen; but negative findings will decrease in proportion as the physician has trained himself to observe and has practised palpation and percussion. An elusive point in the physical examination may be the most important and deciding factor in the diagnosis.

Third: The simple laboratory tests are of great value: observations of the gross appearance of stomach contents; a test to determine the absence, deficiency or excess of free hydrochloric acid; one for occult blood in the stomach contents and fæces; and another for bile in the fæces:—all these data can be readily and quickly obtained by physicians in the remotest country districts. Such evidence, painstakingly acquired, ought to enable the physician to diagnose correctly the majority of all stomach troubles: A legion of mistakes have occurred because physicians have not used

* A complete report of this and other cases will be made later.

their judgement and knowledge, not usually from lack of these possessions.

Finally, when we cannot make a clear diagnosis by ordinary methods, we should employ every special aid available. The most important are the Wassermann test, including an examination of the spinal fluid, and examinations by the *x*-ray. The Wassermann test may, in certain ulcers and doubtful lesions of the stomach, be the means of deciding the proper treatment. Even when this test is negative, an examination of the spinal fluid with positive results may explain some puzzling attacks of epigastric pain,—as in unsuspected gastric crises,—and will, thereby, prevent unnecessary exploratory operations. The *x*-ray examination like every test in medicine is often inconclusive, and *it is not a short cut*.

A "PATRIOTIC medical bureau" has been organized by the physicians of Regina. The bureau will work in coöperation with the Patriotic Fund and will give medical assistance to all dependents of those who have gone to the front. Applications for assistance will be investigated by an attendant who has been appointed for this purpose, to whom all applications must be made. Patients will be sent to the office of one of the physicians attached to the bureau or to the out-patient department of the General Hospital. In cases of emergency or of serious illness, a physician will visit the patient. If a nurse is required, the patient will either be sent to the hospital or a nurse will be supplied by the Patriotic Fund; if assistance is required in the home, a woman will be sent by the same fund, and, if necessary, a housekeeper, who will be under the supervision of the visiting attendant will be sent to look after the family.

ANTI-TYPHOID INOCULATION

BY FRANK W. SCHOFIELD,

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MY object in reading this paper is to point out clearly some of the splendid opportunities for the application of anti-typhoid inoculation in civil life. Then later, by briefly quoting some of the results already obtained, I hope to accomplish the dual purpose of substantiating the claims made for it, and creating a wholesome confidence that will result in bringing this prophylactic into its proper place in preventive medicine.

Some may consider that an apology would be in order for writing on a subject so widely discussed and in some of its phases so well understood. But, unfortunately, many have refrained from realizing a practical experience with anti-typhoid vaccine; their knowledge of the subject being limited to a well memorized statistical statement of its value in the armies of the world. Therefore, I do not hesitate to bring before you some suggestions for its use in this province.

It may not be amiss to state briefly what is meant by anti-typhoid inoculation. This consists of injecting a definite number of dead typhoid bacilli into the subcutaneous tissue of the body, with the object of rendering the one so injected immune to typhoid fever.

A tremendous amount of evidence has been accumulated which proves beyond a doubt that this process does confer immunity from typhoid to an extraordinary degree. Major Russell of the United States Army has said that "Anti-typhoid inoculation protects against typhoid to a greater extent than does vaccinia against variola."

It may be worth while to refresh your memories with a few of the results obtained from its use in military life.

Quoting from the Anti-typhoid Committee's Report to the British Army, 1912, "The histories as regards typhoid fever, of 19,314 soldiers, whose average period of service abroad was twelve

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months, were carefully followed and every precaution possible was taken to verify the diagnosis bacteriologically. Of the number 10,378 were inoculated, and 8,936 not inoculated. The case incidence of typhoid fever among the inoculated was 5.39 per thousand, and among the non-inoculated 30.4 per thousand. All of these men lived under identical conditions."

Reports from the French Army give the following figures. Among 30,325 vaccinated troops not a single case of typhoid occurred, although among the uninoculated the case rate was 2.22 per thousand amongst the home troops and 6.34 per thousand amongst the colonial troops. These men were serving under similar conditions.

At the beginning of the present war enteric was prevalent to a great extent among some of the German troops who had not been protected. Anti-typhoid vaccine was made compulsory with the result that typhoid was almost entirely stamped out.

According to a statement recently made in the British House of Commons only 421 cases of typhoid had developed in the British forces during this war, and of these, 305 had not been inoculated within two years, therefore they could not be considered as being immunized. Only one death occurred among the 116 men who had been recently inoculated, while among the 305 unprotected there were 35 deaths.

Such results are really wonderful, especially when we remember the awful loss of life from typhoid that occurred during the Spanish-American War and the Boer War of 1900. During the latter war there were 8,200 deaths from typhoid while only 7,772 men were killed in action or died from wounds. If such brilliant results can be obtained when used in military life, what are its possibilities among civil communities? Let me emphatically say that the results have been and will continue to be equally satisfactory.

The advisability of extending typhoid vaccination to communities at large while not being harmful is unnecessary unless, owing to a breakdown in the public health machinery, an epidemic of typhoid is threatened. But there are certain individuals and groups of individuals that owing to the nature of their work and the conditions under which they work, are peculiarly exposed to typhoid infection.

First, let us consider the hospital nurse. The attack rate of typhoid fever among nurses has been calculated to be from eight to twenty times as great as among the civilians living in the same community. In other words, the hospital nurse is from eight to

twenty times more liable to contract typhoid than the ordinary civilian. One would have expected a much higher attack rate than this, such figures show clearly the value of careful training in preventing the spread of a contagious disease. By the use of vaccine the typhoid rate can be reduced at least 75 per cent. Inoculation should be made compulsory in all general hospitals. One complete treatment will protect the nurses during their whole course.

Naturally the chances of the physician in general practice of contracting typhoid are greater than those of the ordinary civilian. As an example as well as a safeguard he should be protected in this way.

The inmates of asylums and other institutions can be similarly protected. Anti-typhoid inoculation has frequently proven of tremendous value in preventing serious outbreaks in such places.

We occasionally get reports of serious outbreaks of typhoid in lumber and construction camps. This would never be the case if the labourers were inoculated. Good sanitation is very necessary and will of course, help greatly in preventing this disease here as elsewhere, but cases will crop up in spite of the best sanitary arrangements. The danger of typhoid can be practically eliminated if complete inoculation of the men is enforced.

Anti-typhoid inoculation in the home. Every physician should realize the importance of his duty in this respect. When a case of typhoid fever has been discovered in a home, the inmates should be inoculated as soon as possible. How truly miraculous it is that so many householders escape infection when not given this protection, and how deplorable and unnecessary it is that any secondary cases develop.

The treatment is not absolute, but is quite equal in value to any other prophylactic inoculation existing.

How frequently the answer "contracted at home while nursing mother, brother or sister who is suffering from typhoid" is given in answer to the question "where contracted?" Such an answer is quite out of place in these days of preventive medicine. The physician should be considered responsible for secondary cases if those exposed were not advised to take the preventive treatment.

To refrain from giving or at least advising a prophylactic dose of diphtheria antitoxin to the members of a family who are exposed to diphtheria would be considered a very serious omission. Why not then, use typhoid vaccine after exposure to typhoid which is quite as effective? Moreover, the vaccine is supplied absolutely free, while the antitoxin does cost a few cents.

Large communities such as cities, towns and villages should receive like protection when threatened with an epidemic. The inhabitants should be advised in every possible way to take advantage of this free prophylactic treatment, if the situation is at all serious. This, I may say, has been done here and elsewhere with great success.

The most important fields of usefulness for anti-typhoid vaccine having been covered, I will, by briefly citing some of the results obtained, endeavour to convince you that its efficacy has not been exaggerated.

Our first experience with the vaccine was in a northern lumber camp. Within a few days 18 cases of typhoid had occurred; the physician in charge became alarmed and left. The sanitary conditions were almost as bad as they could possibly be. The entire camp with the exception of the sick men were inoculated; no further cases developed.

Last year, the physician in charge of several lumber camps made a strong appeal to the men to be protected against typhoid by submitting to inoculation. Out of about 880 men 640 were inoculated; in this group no cases developed. Among the 240 uninoculated men 13 cases developed.

Another physician states that last year was the first in ten years that the camp under his supervision has been free from typhoid. He considers this was the result of anti-typhoid inoculation. Many more cases could be mentioned where equally good results have been obtained.

Unfortunately, we have but meagre records of its use in families where one or more of the members have been attacked with typhoid fever. I hope that before long this statement will be changed. Allow me to quote from one report, "The vaccine was used in five different families, sixteen people being inoculated. In some of these families case followed case until the vaccine was used, after which no further cases appeared." The people were very dirty and poor, everything contributing to the spread of infection. All the reports received have been quite satisfactory, in that no cases have developed after immunization. The nurses and attendants of several provincial hospitals have been inoculated with the usual good results. Most of the nurses in the larger Toronto hospitals have been protected. One or two genuine cases of typhoid have developed subsequent to the inoculation. This is to be expected, no method of prophylactic inoculation in existence is infallible.

The nursing staff in these hospitals has never before been so free from typhoid.

In six Massachusetts hospitals where careful records of the typhoid fever rate among the nurses had been kept, it was found that 5 per cent. of these nurses contracted typhoid. Voluntary inoculation was introduced. As a result no cases occurred among the inoculated nurses, but during the same period among the uninoculated 8.5 per cent. contracted typhoid.

In regard to its use during epidemics in towns and cities, the case of Ottawa might be mentioned. During that severe epidemic a few years ago, several hundreds of the citizens were inoculated with, I believe, very satisfactory results.

Recently, during the outbreak, at Brockville, 500 citizens out of about 9,000 were inoculated while the epidemic was at its height. Of these none contracted typhoid after the inoculations were completed. One case developed between first and second injections. As in other such instances, the disease was mild. It is only reasonable to suppose that some of the 500 were infected at the time the vaccine was administered, and that the disease in them was aborted.

The advisability of giving inoculations during the course of an epidemic has been questioned by those who pessimistically ponder over the "negative phase." Theoretically it may be reasoned that it is dangerous, but practically as far as our results show, it is absolutely safe. During the last three years the Provincial Board of Health has distributed to the physicians of the province about 8,000 doses. At present, we have not received any unfavourable reports. Records of 2,000 inoculations have been received and in no cases have those completely immunized developed typhoid. It should be remembered that many of these have been exposed to serious infection.

Three cases of typhoid have developed during the period of inoculation. Two were attacked between the first and second injections, the other came down a day or two after the second injection. In these cases the disease was very mild.

I will burden you no longer with case reports, but before concluding I desire to emphasize briefly a few important points to be observed in giving the vaccine.

Never give the vaccine to a person who is fatigued.

It is very important that the immunized should do no physical work after receiving the injections. The more strictly one rests the less the discomfort caused by the reaction.

Advise strongly against the use of alcohol either immediately

before or after the injections. The reaction is always more severe in alcoholics.

The most suitable place to make the injections is the outside of the arm near the insertion of the deltoid. Make the injections into the subcutaneous tissue. Another favourable location is the infra-clavicular space.

Following inoculation some degree of malaise may be expected in every case. Also a certain amount of local swelling and redness will occur,—the local reaction. This is quite transient, passing away within twenty-four to forty-eight hours.

Keep the vaccine in a cool dark place.

Always shake well before using as the suspended bacteria settle quickly.

If it is desired to minimize the immediate effects of the vaccine the initial dose may be reduced to 250 mill. followed at eight to ten days intervals with 500 mill. and 1 billion.

Further information can be obtained from the leaflet on the subject issued by the Provincial Board of Health.

Some, I know, will object to this paper and say the problem is being attacked at the wrong end. What we need is more attention to the obtaining of pure water, safe milk, the proper disposal of sewage and the extermination of flies. Exactly, but will this entirely prevent the menace of typhoid carriers and convalescents who come among us? When the tubercular cow has vanished and healthy people no longer carry diphtheria bacilli in their throats, and typhoid bacilli in their intestine, then we can abandon the pasteurization of milk and the use of anti-typhoid vaccine. But until then, both of these preventive measures must be brought into operation as widely as possible for the protection of humanity.

THE editors of the *Revue de Médecine* and the *Revue de Chirurgie* announce their intention of resuming the publication of these two periodicals, which has been suspended since August, 1914. Particular attention will be paid to experiences in medicine and surgery during the present war, and the editors will be glad to receive communications from members of the profession who are or have been at the front. The address of the editors is 108 Boulevard Saint-Germain, Paris.

INFLUENZA MENINGITIS WITH REPORT OF TWO CASES

BY ALAN BROWN, M.B.

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THE extension of the practice of employing lumbar puncture as an aid to the diagnosis of meningitis has had as one effect the establishment of the important fact that the influenza bacillus is not an infrequent cause of sero-purulent meningitis. That the influenza bacillus may act as a cause of acute inflammation to the meninges has been known since the publication of Pfuhl's illustrative case in 1892, but that it acts as a not infrequent cause of that condition we are just beginning to learn. Influenza meningitis appears to be a very severe and fatal form of meningitis and to be exceeded in respect to its fatality only by the pneumococcus and tuberculous forms. It remains, however, for the present an undecided question whether influenza bacilli may not occur in the cerebro-spinal fluid without setting up inflammation just as pneumococci and some other organisms have been known to do. The frequency with which the influenza bacilli occur in the cerebro-spinal fluid in all conditions has not been determined. The influenza bacillus is a slender rod somewhat varying in size, staining deeply at the poles and being gram-negative. Its invariable and most prominent characteristic is its hæmophilic property, next to which pleomorphism is its most striking attribute. It may be considered as conclusive that a pseudo-influenza bacillus, as distinct from the true influenza bacillus producing pathological conditions in human beings, does not exist. In the Infants' Department of the Children's Hospital cultures are made exclusively on agar mixed with rabbit's or human blood. Petrie plates and slanted tubes of the medium are readily prepared by adding a few drops of rabbit's blood to the melted agar previously cooled to 45°.

The pleomorphism of the bacilli is brought out clearly by observing cultures from day to day. After growing from fifteen

From The Infants' Department and Laboratory of The Hospital for Sick Children, Toronto. Received for publication September 21st, 1915.

to twenty-four hours minute regular bacilli among which threads are present are seen, on the second day the curved forms and threads are usually increased and the bacilli are thicker. As regards the pathogenicity of the bacillus, all the strains studied by Wollstein¹ were virulent for the smaller animals. Agglutination reactions, complement deviation tests, and protection experiments made by this same observer are inconclusive. It is interesting to note here that in every respiratory case admitted to the department a culture is taken from the bronchial secretion and examined for the various pathogenic organisms. During the fall and winter of 1914-15 we found one-third of the cultures to show the presence of the influenza organism. Since 1903 the number of cases of meningitis due to the influenza bacillus has been increasing, this point is undoubtedly explained by the imperfect pathological methods originally employed. The frequent finding of the influenza bacillus in cases of endocarditis, purulent arthritis, empyema, appendicitis, peritonitis, meningitis, and otitis, as well as their frequent occurrence in the bronchial and nasopharyngeal secretions in cases of clinical influenza indicates that this organism, like the pneumococcus, is capable of causing inflammations of the serous membranes anywhere in the body. A few words should be added on the probable mode of infection of the meninges with the influenza bacillus. It is a well-known fact that the influenza organism is present in the nasopharynx in a high percentage of persons exposed to influenza.

The upper respiratory tract would appear to the most frequent portal of entrance into the body for these organisms and to account for their frequent localization in the middle ear, bronchi and lungs; whether the meninges are infected directly through the lymphatic connexions existing between them and the upper nasal mucosa must, for the present, remain an undecided question. It is of some significance to learn that after subdural inoculation of the bacilli the organisms can be recovered from the upper nasal mucosa, suggesting that they are, in part, excreted there. It must, however, be considered that since they also reach the blood they may be secreted from the blood and not directly from the meninges, or that they are contained in the blood in the peripheral circulation, and that a slight injury of the mucosa inseparable from the making of the cultures is responsible for their presence in the tubes. The following case was referred to me by Dr. Andrew Gordon.

CASE 1. D. J., age five months, admitted with a history of coryza, fever and convulsions of four days' duration; the convulsions having commenced but forty-eight hours before entering the

hospital. The family physician was called on account of "cold and bronchitis". Two days later the mother noticed retraction of the head, in addition to this, a slight intestinal upset. The child was well developed and nourished, fontanelle bulging, slight retraction of the head, increased tendon reflexes, irregular respirations and general spasticity. Chest clear. Fundi showed an intense double papillitis. Double aural paracentesis revealed pus in both ears from which smears and cultures showed almost pure influenza. There was a leucocytosis of 38,000 with 71 per cent. polymorphonuclears. Temperature range between 99°F. and 104°F.

SPINAL FLUID—CASE 1.

Date	Amount	Characteristics	Cell Ct.	Differential Ct.	Globulin	Smear and Culture
Feb. 8th.	25 c.c. + pressure.	Yellow, faintly turbid.	1600	96 per cent. polymorph.	xxx	Influenza bacilli extra cellular.
Feb. 9th.	77 c.c. + pressure.	More turbid.	3400	100 per cent. polymorph.	xxxx	do.
Feb. 10th.	35 c.c. + pressure.	Turbid.	3600	do.	xxxx	Bacilli becoming intra cellular.

On the 9th and 10th, 18 c.c. and 30 c.c. of influenzal serum were injected by the gravity method intraspinally; apparently the only benefit obtained from the serum being the increase in phagocytosis. The infant was almost moribund on admission and died in seventy-two hours. The blood culture obtained during life showed a pure growth of influenza. Cultures from the post-nasal space and from the pus obtained on paracentesis showed a profuse growth of influenza. A culture procured from the bronchial secretion did not reveal any influenza bacilli. Autopsy showed an extensive leptomeningitis, the exudate being thickest at the base, fatty infiltration of the liver, exudative nephritis and a very small superficial strip of bronchopneumonia at the left base. Post mortem cultures from the brain, heart's blood, left lung and mastoid showed pure influenza. The points of interest in this case are (a) path of infection, apparently through the ethmoidal plate with practically no involvement of the lungs; (b) the effect of the serum. This of course was not encouraging, although on the second day following injection, there was marked phagocytosis.

CASE 2. J. H., age one year, admitted to the Infants' Department, June 7th, and died four hours later. The child had had a cough for a period of two weeks and acute symptoms of fever, drowsiness and convulsions of but two days' duration. Examination revealed the child in a comatose and dying condition, the chest was filled with many coarse râles, constant nystagmus, generalized convulsive movements, fontanelle bulging and Brudzinski's sign strongly positive. Temperature 99°F., lumbar puncture revealed 35 c.c. slightly turbid fluid under increased pressure, cell count 6,080, 73 per cent. polymorphonuclears, globulin xxx. Smear showed many gram-negative bacilli mostly extra-cellular. Cultures from the sputum and blood negative for Pfeiffer's bacillus. Autopsy showed a purulent leptomeningitis, convolutions covered with thick exudate spilling over into the sulci. Small amount of exudate at the base extending on to the ethmoidal plate and involving the optic nerves and chiasma. The lungs showed no pneumonia, only a small amount of congestion posteriorly. Through some error post mortem cultures were not made.

REMARKS

That the influenza bacillus produces a purulent meningitis in numerous instances there is no doubt and furthermore this organism in many cases both experimentally and clinically produces a septicæmia, and involvement of the serous cavities. In Wollstein's¹ experimental work on guinea pigs and monkeys all the strains were obtained from definite clinical cases of influenzal meningitis either pulmonary infection alone or a combination of lung and meningeal infection. Cohen² believes that most of the cases of influenzal meningitis reported have been those of so-called organisms of septicæmic meningitis infection caused by bacilli closely allied to that of the influenza organism, the only difference being that the latter is not found in the circulating blood while the former is characterized by its constant presence. Further work by this observer in conjunction with Fitzgerald³ attempted to show that the bacillus of septicæmic cerebro-spinal meningitis has in the past been confused with the Pfeiffer organism. Both infections being highly fatal and the distinguishing feature being the reaction of agglutination. All other observers with the exception of Odaira⁴ differ from Cohen and Fitzgerald. Wollstein's work seems most confirmatory, in conjunction with the large amount of clinical evidence at her disposal.

The frequency with which the influenza is present in the various respiratory infections may be gleaned from the fact that in one season Holt⁵ obtained 63 per cent. positive cultures. As previously mentioned during the winter and fall of 1914 and 1915 in the Infants' Department at the Sick Children's Hospital an investigation showed that 31 per cent. of the infants had the influenza present in the bronchial secretion. From these facts alone it is no wonder that a meningeal involvement is not infrequent.

The character of the spinal fluid of influenza meningitis is fairly uniform. On withdrawal, it is cloudy and deposits on standing a whitish or yellowish sediment, as the disease progresses the fluid becomes more purulent. Polymorphonuclears are increased, the globulin content positive and reducing substances negative. The bacilli are seen usually free in the field and there is very slight phagocytosis until after the serum is used. The morphology of the bacilli vary greatly. It is doubtful whether the bacilli are ever present in a clear fluid. The great preponderance of cases of influenza meningitis among young infants and its very high mortality are very striking as is the opportunity which lumbar puncture gives for early and correct differential diagnosis in this disease. Thus, since Slawyk's⁶ positive case in 1899 there have been slightly over fifty cases of pure influenzal meningitis reported. In addition to this there are nine cases of mixed influenzal infection, five of which complicated a tuberculous meningitis; in all there are but six reported to have recovered, one following the use of the influenzal serum.

Literature:

1. WOLLSTEIN, *Am. Jour. Dis. Child.*, 1911, vol. i, pp. 26-58.
2. COHEN, *Annales de l'Institut Pasteur*, 1909.
3. COHEN and FITZGERALD, *Central F. Bakt. Orig.*, 1910.
4. ODAIRA, *Central F. Bakt. Orig.*, 1911, 61, p. 289.
5. HOLT, *Arch. Int. Med.*, 1910, vol. v, pp. 449-458.
6. SLAWYK, *Ztschr. f. Hyg.*, 1899, xxxii, 443.

THE Canadians resident at Folkestone, England, have offered to supply a convalescent hospital for Canadian soldiers. The offer has been accepted by Colonel Rennie, the director of medical services, and will take the form of a unit with accommodation for fifty patients.

Case Reports

CHOLELITHIASIS AND CHRONIC VALVULAR DISEASE

By E. M. VON EBERTS, M D.

Surgeon to the Montreal General Hospital

WITHIN the last few years several articles have been published upon the subject of chronic cholecystitis as a cause of myocardial incompetence, notably a paper by Robert H. Babcock, of Chicago, in which the histories of thirteen cases are recorded. It would appear to be the opinion of these writers that the myocardium suffers as the result of (1) the circulation in the blood of bacteria or their toxins; (2) the depressing influence of bile constituents on the myocardium; (3) disturbance of the splanchnic circulation and (secondarily) of the systemic circulation and the heart; and (4) reflex inhibition through irritation of the vagus.

The following case is reported in the belief that it demonstrates the possibility of the heart being the primary factor, and the cholecystitis and cholelithiasis secondary, for the reason that chronic congestion of the liver must necessarily embrace a catarrhal condition of the biliary passages, with a special susceptibility to infection. The lithiasis is secondary to the cystitis.

L. McL., female, aged twenty-seven, was referred to the Montreal General Hospital on May 8th, 1914, by Dr. Robert Elder, of Granby, Quebec.

The patient's general health had always been good, although she was a "blue baby", and there had always been evidence of organic heart disease.

In April, 1912, the patient had an attack of severe pain in the lower portion of the abdomen, accompanied by vomiting. The bowels were constipated. There was a slight rise in temperature on the first day of the illness. There was no jaundice. A tender point developed above the level of and to the right of the umbilicus. The patient was confined to bed for one week. Two weeks later a second attack, with pain in the epigastrium, occurred. The pain was less severe than in the first attack, but the vomiting was fre-

quent. The same tender point was noted. Twenty-four hours after the onset of the attack jaundice developed, and persisted for two weeks, during which time the patient was confined to bed. After a lapse of a fortnight a third attack occurred, with the same symptoms: pain, tender point, vomiting, and jaundice. The patient was confined to bed for five days. In this attack Dr. Elder noted that the liver dulness extended as low as the umbilicus. For about ten months subsequently, or until April 9th, 1914, there were no symptoms. On this latter date there was a recurrence of all the former symptoms with the exception of the jaundice. The patient was in bed for five days. The fifth and last attack began on May 5th, 1914. Severe pain was at first absent, but there was tenderness in the right upper quadrant. Vomiting occurred six or seven times during the day. On the 6th the patient vomited only once. There was no fever. On May 7th the pain became suddenly very severe, and vomiting occurred twice during the day. A mass at the level of and to the right of the umbilicus was detected for the first time. On the morning of the 8th the symptoms were more aggravated. A swelling in the region of the gall bladder was distinctly visible. The temperature was 101° ; and the pulse, 120.

The patient was admitted on the evening of May 8th. Examination then showed the following condition. Temperature $100\text{--}4/5^{\circ}$; pulse, 160. In the right side of the abdomen, reaching from the middle line to the outer border of the rectus, there was a tender, palpable mass, extending from the costal margin to a point 3 cm. below the umbilicus. Over this area the abdominal muscles were rigid. There was a slight increase in the transverse dulness of the heart. At the base of the heart there was a loud blowing murmur, apparently systolic in rhythm, heard less distinctly at the apex and not transmitted to the axilla. The leucocytosis was 28,000.

Operation was performed at 10 p.m. After a preliminary hypodermic injection of morphine gr. $1/4$ and atropine gr. $1/150$, anaesthesia was induced and maintained by ether (open method). An incision five inches long was made one centimetre within the border of the right rectus muscle, extending from just below the costal margin to the umbilicus. The deeper layers of the parietes were cedematous. The peritoneal cavity contained a moderate amount of blood-stained fluid. There was exposed a distended and acutely inflamed gall bladder, almost wholly invested by omentum. The recent omental adhesions were separated, and the tense gall bladder tilted forward into the wound. The distal

portion was greyish and gangrenous, and the walls were greatly thickened throughout. A quantity of purulent material was aspirated. The gall bladder was then drawn as far forward as possible into the upper angle of the wound, and stitched to the peritoneal edges of the incision. The lower portion of the wound was closed in the usual way. The protruding portion of the gall bladder was then excised, the interior sponged out, and an irregular calculus, about the size of the terminal phalanx of the little finger, removed. No other stones could be felt. Drainage was provided.

Toward the latter part of the operation a submammary saline was given.

When the patient was removed to the ward, the pulse was very small, 160 to 170. A continuous rectal saline was ordered.

During the morning of the 9th the patient vomited once. The temperature was $99-2/5^{\circ}$; the pulse varied between 112 and 120. The expression was normal, and the patient appeared to be convalescent.

On May 10th, Dr. Gordon Campbell reported the heart lesion to be a pulmonary stenosis. When the patient had sufficiently recovered, electro-cardiographic observations were made by Dr. Cotton, who confirmed the clinical diagnosis of pulmonary stenosis.

As a heart lesion had been present since birth, there can be no doubt that the cholecystitis and cholelithiasis were of a later development.

THE McLaughlin Carriage Company and its employees have presented three motor ambulances to the Canadian Red Cross Society. Each ambulance is of new design and will accommodate four patients lying down or twelve sitting patients. Other ambulances of the same design have been presented to the society by the Ottawa and Ottawa Valley Branches of the Red Cross Society, by the staff of the Bank of British North America, and by the Sudbury District Branch of the Red Cross Society.

Editorial

TRANSFUSION

THE medical profession is witnessing a new wave of enthusiasm over transfusion. When we remember that for several centuries the usage of phlebotomy had become obsolete, only to be recently revived, it ought not to generate surprise that transfusion has undergone a similar course.

This method of treatment by the injection of a healthy individual's blood into a patient has been in vogue for many centuries, but through the disasters that occurred by reason of its irrational employment, its usage was prohibited by the Government of France in the seventeenth century. Folli had used it in 1654; Denis in 1667; and Cronne and Lower in the same century had employed it with the blood of lower animals and the human, with more or less success.

A century ago it was again revived, being chiefly used to replenish blood-losses after labour, and in many instances blood taken from the lower animals was used with impunity. Blood was carried directly from the donor to the recipient, or was removed from the body, defibrinated, and thus injected into the patient.

Our studies of hæmatology and immunity have led to the important observation that blood of different species often varies to such an extent as to render indiscriminate transfusion of great danger to the recipient and that in the human, moreover, the variations were such that without previous tests for the compatibility of the blood of recipient and donor, it was impossible to tell whether safety could be assured.

There have been various opinions as to why transfusion should be beneficial, and in the estimation of many the mere

volume of blood explained the improvement. For this reason it was held that the use of transfusion had no advantage over the intravenous injections of saline solutions. But here again modern hæmatology has demonstrated that blood formation is stimulated by the introduction of new blood, so that transfusion has obtained an added importance. After all, the object of transfusion is to attain a safe, rapid and simple mode of restoring the volume of blood, but more especially its regeneration in the blood-forming organs. Intravenous saline injections, however, are useful only where the organs are already in good condition and can withstand the immediate and violent stimulation of a large volume of fluid. The *object* of transfusion, then, is to provide those morphological elements and active principles from the donor which can improve the impaired metabolism of the recipient and stimulate his cells and hæmopoietic organs. This is all transfusion is expected to accomplish, for it neither rejuvenates old organs, nor repairs diseased tissues, though it affords them time to regain their loss and to add a stimulus to their new growth.

One must bear in mind, however, that transfusion is no panacea, and that we should therefore avoid too great enthusiasm about its employment, though when properly used, and in suitable cases, it may be of the greatest benefit.

With the improvement in modern surgery and the advantages of asepsis, the manipulation of blood vessels in skilled hands has become a comparatively simple matter, and to-day, thanks to the genius of Carrel and Crile, the renewed appreciation of transfusion has gained ground. If to-day appeal is seldom made to their methods, (artery to vein transfusion), on the other hand we are indebted to their zeal for making it more obvious that transfusion is not only a benefit where much loss of blood has occurred, but in many other ways it operates both as a life-saver and a healer of disease.

It must not be supposed from the above remarks that the transfusion from the donor's arteries to the veins of the

recipient is by any means an obsolete method, for during the present crisis in France, the surgeons are employing this method with success,—witness the brilliant results of Berard and Lumière in September last. There is no doubt, however, that surgical skill and well practised technique are essential to the successful employment of artery to vein transfusion and the indirect method of collecting blood from the donor's veins with citrate solutions and in paraffin tubes, prior to the injection, can easily be employed with very little apparatus, with comparatively little skill, and much more expeditiously.

The technique of transfusion has been the subject of discussion for the last decade, and very few journals are issued which do not contain some article dealing with the subject.

Since the profession at large have begun to favour its employment, many methods have been invented to replace the more difficult and dangerous technique of Carrel and Crile. Lindeman, for example, was among the first to use the vein to vein transfusion in a large series of cases, though v. Ziemssen too, had used it twenty years earlier. The blood is withdrawn by syringes from the veins of the donor, and injected seriatim into the recipient. But this method was found rather complex. The need of many assistants and the too much and too frequent handling of the cannulæ resulted in jarring, in trauma, and in over-frequent clotting of the blood. Though his results were remarkable, they should be attributed to his individual skill rather than to the method he employed. It was necessary, if possible, to gain some method by which trauma to the vessels and unnecessary clotting could be avoided, so that a large amount of blood could be taken from the donor at one time. This has been successfully accomplished within the last few years, both by the direct and indirect method. Perhaps the greatest achievement is the invention of Unger, who uses the direct method. A short needle attached to a rubber tube is placed in each of the veins, of the recipient and donor. These two tubes are severally attached to a double-way stop-cock

which, connected with a syringe alternately withdraws blood from the donor, and then supplies it to the recipient. At the same time there is another syringe attached to the stop-cock which alternately supplies saline to each. When a syringe full of blood has been withdrawn, the stop-cock is turned thus allowing the blood to be injected into the recipient, while the saline at the same time is made to flow into the tube connected with the donor. In this way both channels are constantly suffused with blood or saline, as the case may be, and clotting is easily prevented. The apparatus is previously washed with a thin solution of paraffin, which further inhibits the clotting. Recently Unger has even dispensed with the paraffin as being unnecessary.

60 c.c. of blood can be transfused per minute,—the method is rapid, the speed may be controlled, and the blood is kept outside of the body for a minimum of time, so that clotting is in every way prevented. Unless the patient is very stout, or the veins very small, there is no need to expose them, as the needles may be inserted with ease directly into the veins through the skin.

Another remarkable device (an indirect method), has been perfected in various ways by Kimpton and by Weil.

Kimpton's method consists in the use of large paraffin-coated glass cylinders (250 cm.) with an exaggerated S-curve at one extremity which is drawn to a fine point allowing of its insertion into the vein. The blood is collected from the donor's vein and subsequently expelled into the recipient's vein by means of a rubber bulb. The paraffin coating delays coagulation, and allows a reasonable interval to elapse before the blood is injected. The disadvantage of this method, however, is obvious. It is not always easy to withdraw the blood in this way from the donor's veins, and later even when the tube has successfully been filled, any accidental clotting at the point of the tube would render useless the large quantity of blood withdrawn.

Herudin, which is an active principle from the buccal

gland of the pond leech, is sometimes used instead of paraffin to minimize the danger of coagulation. The method was devised by Satterlee and Hooker, but Lewisohn's experience indicates that its employment is dangerous. Its anti-coagulant action is attributed to its power to effect balance between the pro-thrombin and anti-thrombin, or at all events to neutralize the thrombin and the pro-thrombin.

The indirect method of transfusion by means of sodium citrate as an anti-coagulant was devised by Hustin, and elaborated by Lewisohn. Here as in Kimpton's method the blood is withdrawn by means of a cannula into a large cylinder or jar containing 5 c.c. of a 10 per cent. sterilized sodium citrate solution, and the fluid thus collected is stirred while running. The sodium citrate fixes the calcium of the blood which is a necessary factor in spontaneous coagulation, i.e., it induces decalcification.

Lewisohn found that a 2 per cent. solution would retard coagulation for forty-eight hours. After withdrawing 250 c.c. of blood and mixing it well with a glass rod, more citrate solution is added for larger quantities of blood, thereby insuring fluidity. It is interesting to note that the citrate solutions do not have any effect in retarding the coagulation time in the recipient. On the contrary, it has been observed, and confirmed by Weil that the coagulation time is hastened, an experience which is of importance in considering the treatment of purpura. Some operators have thought that the chemical reaction resulting from decalcification might induce toxicity, but this was not Lewisohn's experience. He injected large quantities of blood by this method with impunity and found no toxic results.

One other method of indirect transfusion is worthy of mention, namely, by *defibrination*. By this method the blood having been withdrawn from the donor is deprived of its fibrin through stirring and thus injected into the recipient. There is no doubt that in the past many successful transfusions have been made by these means, despite its present

unpopularity. Those who are opposed to this method hold that as the fibrinogen and platelets are removed and the cells injured, much of the value of this method is lost. Possibly the patient's anti-thrombin may not be sufficient to counteract the effect of the thrombin in the defibrinated blood, and intravascular clots may result.

Of the *dangers* of transfusion much has been written. Blood is a complex tissue and the change in its quality and quantity are numerous under many conditions. The ideal to be attained is to give to the receiver a blood which is both acceptable and potent, and so to modify the donor's blood as to attain this end. The incompatibility presents one of the greatest dangers, particularly from hæmolysis, though it has been questioned whether or not this danger is overestimated. Considering the amount of transfusion done, and the frequent disregard of this danger, it may be said that disastrous results are few. It should be remembered that from small causes, the donor's blood previously compatible, may easily be rendered incompatible, as, for example, by the taking of alcohol. Further, that blood may not hæmolyse in vitro, but may do so in the circulation, and vice-versa.

It was Bernheim's impression that where urgency was required, it was not worth while attempting the test for hæmolysis, and more recently Berard, who, during the present war has employed transfusion with and without the hæmolysis tests for a large series of cases in which clots, infection, pyrexia, and other serious conditions were present, not a single instance of trouble from this source was observed. It is, of course, of great importance during the operation to avoid the admixture of any thrombo-plastin from wounded tissue of the donor's vessels, as well as from the thrombo-plastin which might be derived from the cells of the blood through friction during the transfer.

Notwithstanding the recorded successes in this field, it must never be forgotten that one is constantly confronted

with this danger, and that a hæmolysis may occur and has indeed occurred with hæmoglobinuria and other serious symptoms. For this reason one is not justified in omitting the tests, where time permits.

The danger from air embolism seems equally exaggerated; at all events air purposely introduced into the veins of lower animals, during experimental transfusion, produced no serious results.

Dilatation of the heart as a result of transfusion is an easily avoidable consequence, when any of the modern methods is employed. By any of the means above mentioned, the quantity of blood and the speed of its transfer can be easily regulated to suit the requirements of the participant.

The *indications* for transfusion are many. As an emergency to save life it is employed both because of its power to replace the lost liquid resulting from hæmorrhage in a large vessel, and its hæmostatic action in stopping persistent oozings. In such emergencies if the patient be young and strong, it is well to use saline injections first, and transfuse later.

In grave anæmias of unknown origin, transfusion has been used with great effect. In the other blood diseases, particularly in the purpuras and hæmophilia, good results have been obtained. The human blood as a therapeutic agent appears to have an advantage over the serum of animals, because blood cells which are transfused go on living and functioning. In purpura definite cures have been attained. In hæmophilia, transfusion supplies the pro-thrombin and therefore stops the bleeding, and at the same time replaces lost blood. In pernicious anæmia it has apparently done no more than prolong the periods of remissions. No authentic cures of pernicious anæmia have as yet been recorded by transfusion, though much unpublished data announcing success may still be forthcoming.

For surgical conditions, either prior to or during operation transfusion aids anæsthesia, it repairs the resisting power,

thus preventing shock and other subsequent serious reactions, and converts a poor surgical risk into a good one.

Transfusion is indicated if the hæmoglobin is less than 50 per cent., if the patient will be unable to take much food soon after the operation; and again if the operation is likely to be a lengthy and bloody one.

Reverting to our original statement to the effect that transfusion has with reason been revived, we may confidently anticipate that with the years there will be an ever-increasing employment of this method, and that when blood conditions are still better understood, the facilities for doing this work will be greatly augmented.

THE ONTARIO COMMISSION

WE desire to call the attention of the profession throughout Canada to the Special Commission appointed by Premier Whitney, of Ontario, to investigate and study carefully all the various medical cults now desiring the right to treat the sick, and applying to the Ontario Legislation for official recognition. A report to the government of the information thus obtained will be made, and a decision arrived at in regard to each cult as to the necessity or desirability of any official recognition of its claims, thus implying the right to treat disease, and to sign death certificates.

Two years ago, Premier Whitney, in his address at the opening of the new Toronto General Hospital, made the promise to appoint such a commission to settle, so far as may be practicable, the status of the many schools of medical thought which have sprung up during the past few years, and in fulfillment of this promise Justice Hodgins of the Supreme Court of Ontario has recently been appointed as the Commissioner. During the past few weeks, chiropractics and osteopaths, Christian Scientists, drugless physicians, and monotherapeutists, optometrists and opticians, have all been represented,

and have presented their claims. As the Court stated at its opening, every school of medical thought will be heard and considered. There will be no controversy. All medical cults will have a chance to tell all they know about the manner of treating disease, and the advantages to be derived from their special method. Regular medicine has also been obliged to present its *apologia pro sua vita*. Our old friends the Medical Faculty of the University of Toronto, the Ontario Medical Association, the Ontario College of Physicians and Surgeons, the Provincial Board of Health, the Ontario College of Dental Surgery, are all to appear and present their statements. We publish in this number the statement as presented by the President of the Ontario Medical Association, regarding its history, the reason for its existence, and the good work which has been accomplished under its auspices during the half century that it has existed. This statement should be read by all.

That there are many men of many minds, and that all men do not think alike are platitudes which have their demonstration in every profession, and in none more so than in our own. Very justly Dr. Cameron makes the claim that the profession in Ontario (we may add and in the Dominion) cannot be considered a close corporation. Its doors have always been and are now open for the admission of any one who can comply with the common regulations regarding education and training. We do demand, however, in the interests of the general public that no person be recognized by the authorities of any province as a fit and proper person to treat the sick in any way or to any extent who has not obtained by years of previous study a good working knowledge of the basic facts of chemistry, biology, anatomy, physiology, and bacteriology as tested by an examining board competent to examine, before whom all students desiring to practise medicine must pass. We are confident that no government in Ontario will be so defiant of the intelligent public opinion as to open wide the portals, and permit

ignorant brazen-faced charlatans to do much harm by their mischievous efforts to treat disease of which they know not the cause, or the course it may run, or the end which is threatening.

A NUMBER of convalescent homes intended exclusively for Canadians have been opened in England. During the summer months, such convalescents were sent to Bromley Park, Woodcote Park, Epsom, and to the larger hospital at Monks Horton, near Shorncliffe; now, however, that the weather is too cold for tent life, other convalescent homes have been opened, among them, Hillington House, Uxbridge, which is used as the convalescent annexe for Cliveden, the Friendly Society's Convalescent Home at Dover, the Glack Convalescent Hospital at Deal, Mrs. Fleming's Convalescent Hospital at Luton House, Selling; Lady Northcote's beautiful house at Eastwell Park, Ashford, and Bearwood Park, Wokingham. Many homes have been thrown open to Canadian officers,—Nuneham Park, Oxford; the home of Sir William Harcourt; Holme Pierrepont, offered by Lord Manners; Merlewood, Virginia Water, the home of Sir Donald MacMaster, M.P., and the Moorings, Sunningdale, offered by Mr. Wills. The policy of distributing Canadians among English homes has been abandoned. It was thought that in this way the men from the Dominions overseas would learn to understand and know the people of the home land, but so many petitions have been received from Canadians asking that they might be transferred to centres where they would be with other Canadians, that it has been decided to establish hospitals and convalescent homes exclusively for Canadians. The same decision has been arrived at concerning the men from Australia and New Zealand. As for the Canadian hospitals, the Duchess of Connaught Red Cross Hospital at Cliveden, which has recently been enlarged, is staffed by members of the Canadian Army Medical Corps; the hospitals at Shorncliffe are becoming more and more

Canadian—No. 5 General Hospital, C.E.F., under Lieutenant-Colonel Hart, of Victoria, British Columbia, is at the Shorncliffe Military Hospital—and the Moore Barracks Hospital and the Tent Hospital at St. Martin's Plain are staffed by the Canadian Army Medical Corps, the patients being almost entirely Canadians; the Canadian War Hospital at Walmer is devoted to Canadians, and the Helena Hospital at Shorncliffe has wards reserved for members of the C.E.F. All Canadian tuberculous patients are sent to Pinewood, Wokingham. Canadians who have been "gassed" or who are suffering from the effects of shock will receive treatment at the Granville Hotel, Ramsgate, which has been converted into a hospital; and arrangements are being made for other hospitals where special treatment will be given.

MENTION has already been made of the Anglo-Russian Hospital, which was organized in London some months ago for service in Russia as practical evidence of the sympathy of the British with the Russian people. The hospital is to be established in the Dmitri Palace in Petrograd. An advance party left England some time ago and on November 2nd, a further part of the medical staff, with nurses and orderlies, left London for Petrograd.

THE EVANS Memorial for Clinical Research is desirous of coming into communication with as many physicians as possible who have used bacterial vaccines in the treatment of typhoid fever for the purpose of collecting statistics concerning the efficiency or non-efficiency of the method as a therapeutic measure. If any who have done this even with only one or a few cases will send their names and addresses blank forms will be sent to them upon which uniform reports may be made. Due credit will be given to each in any reports that may be published. Kindly address all communications to Dr. W. H. Watters, 80 East Concord St., Boston, Mass.

THE 3rd Australian General Hospital left for England on May 19th, and is now stationed at Lemnos Island, in the Ægean Sea; this unit is under the command of Colonel Fiaschi, D.S.O., of Sydney, New South Wales. The 1st General Hospital, which is at Cairo, was originally under the command of Lieutenant-Colonel Ramsey Smith, head of the Health Department of South Australia. Lieutenant-Colonel Smith, however, has been recalled, and the unit is now in command of Lieutenant-Colonel H. Maudsley. The 2nd General Hospital of the Australian Expeditionary Forces is under the command of Lieutenant-Colonel T. M. Martin. According to the *Medical Journal of Australia*, up to February 3rd, 1915, the Commonwealth had contributed, in addition to these general hospitals, No. 1 Stationary Hospital from South Australia; No. 2 Stationary Hospital from Western Australia; No. 1 Clearing Hospital from Tasmania; No. 1 Field Ambulance from New South Wales; No. 2 Field Ambulance from Victoria; No. 3 Field Ambulance from Queensland, South Australia, Western Australia, and Tasmania; No. 4 Field Ambulance from Victoria, South Australia, and Western Australia; and Nos. 1, 2, and 3 Light Horse Field Ambulance Corps. A large number of members of the profession, of course, are on active service in the capacity of Regimental Medical Officers, or with the Royal and Australian Army Medical Corps.

As a natural consequence of the enlistment of large numbers of men, a greatly increased demand has arisen for trained women workers. In medicine perhaps this is particularly true, for not only are women physicians needed to replace the men who have joined the Royal Army Medical Corps or the staff of a military hospital, but they are also doing valuable work at the front where they have earned the warm praise of Sir Alfred Keogh. Their work has found favour in the eyes of the British War Office and units organized, equipped, and manned! by women, which were

refused recognition at the commencement of the war are now under military inspection. In England as early as last February, at least five military hospitals had been equipped and staffed entirely by women; three others have been organized and equipped by women, and half of the members of the staff of two additional units are women. A hospital of one hundred beds was organized by Drs. Garrett Anderson and Flora Murray, and commenced work in Paris under the ægis of the Union des Femmes de France early in September, 1914. In October, a branch hospital of seventy beds was established at Wimereux; the medical supplies, stores, etc., for this unit were provided by the British War Office. The Women's Hospital Unit, in charge of Mrs. St. Clair Stobart, was equipped by the Women's Imperial League, and established in Antwerp in September, 1914. The bombardment of that city and its subsequent occupation by the Germans made it impossible for the unit to stay there after October 7th, and it was only with great difficulty that the wounded were conveyed to safety and the members of the staff succeeded in reaching England via Ostend. This unit was afterwards sent to Serbia. The hospital under the command of Dr. Florence Stoney was also in Belgium until the fall of Antwerp; it is now at Cherbourg working under the French Red Cross.

The three units supplied by the Scottish Federation of the National Women's Union are worthy of especial mention as doing work of particular value. They are, (1) A field hospital under the command of Dr. Agnes Savill, stationed near Chantilly, France, in the old Abbaye de Royaumont. This unit is under the French Red Cross and is known as L'hôpital auxiliaire 301; it has accommodation for two hundred patients and its staff, over fifty in number, is composed entirely of women: it was the first hospital in the district to be equipped with *x*-ray apparatus. (2) The first Serbian unit which arrived at Kragujevatz on January 6th, 1914, and immediately on arrival received one hundred and fifty wounded from the Serbian government. (3) The second

Serbian unit which was sent at the request of the Serbian government. This is a mobile base hospital with equipment and tent accommodation for two hundred patients; it also has a bacteriological laboratory and is under the command of Dr. Alice Hutchison. On its way to Serbia, the unit was detained for a fortnight at Malta to assist in the reception of one thousand wounded, which had arrived unexpectedly. On arrival in Serbia, the hospital was stationed at Valejvo. A third Serbian unit has been under consideration for some time.

The women's colleges of Girton and Newnham at Cambridge University contributed £1,800 to the Scottish Women's Hospital Committee and, at the request of the French military authorities, the money was expended on equipment for a two hundred bed hospital which was sent to Troyes. It is under the administration of Mrs. Harley, the sister of Sir John French, and is manned by women physicians, nurses, and orderlies.

On June 3rd, last, a hospital under the command of Dr. Isobel Ormiston, left England for Montenegro, where it has been doing splendid work. This unit was provided by the Wounded Allies Relief Committee. Dr. Garrett Anderson is now in charge of a military hospital of five hundred beds in London, and has been given the military rank of major.

Among our allies, women now hold many important posts. In Russia the Minister of Public Instruction some months ago notified medical colleges that women students who had studied for six semesters or more might be called upon for service in hospitals at the front and in England, France, and Russia the demand for women doctors is greater than the supply. In Germany, on the other hand, although women physicians filled important positions at the beginning of the war, they are no longer employed in hospitals connected with the army medical department. Rumour has it that misunderstandings have led to this decision, but the reason given is that there is a sufficient number of male physicians available for such service.

THE following is taken from the presidential address delivered by Sir Donald MacAlister at the one hundred and second session of the General Council of Medical Education and Registration, as reported in the *British Medical Journal* of November 6th, last: "As to the future supply of persons duly qualified to fill our depleted ranks, the prospects are dubious. From the British Dominions and from other countries about two hundred and forty practitioners have this year been registered in the *Colonial List* and the *Foreign List*. Orders in Council have applied the Medical Act (1886) to Ontario and Saskatchewan; and communications are daily expected from the three Western Provinces of Canada in which that Act is not yet operative, that will enable us to establish reciprocity with them. There is reason to think that, when the arrangements with the Dominion are complete, a consummation which we devoutly wish to hasten, the number of Canadian practitioners on the *Medical Register* will be considerably increased. The new men will be as heartily welcome as those who have already come to our aid from Eastern Canada, Australasia, and South Africa. But in case my words should reach any intending applicants for registration who are still in Canada, I would impress upon them the necessity of ensuring that they not only hold a recognized diploma from their provincial university or college, but are legally entitled to practise in the province itself. This last is required, as a condition of reciprocity, both by Canadian and Imperial law. The neglect of the condition has in some cases caused delay in registration, which the Registrar regrets but cannot avoid." This, however, is no longer necessary for arrangements have now been made whereby a practitioner, who is a graduate of a recognised university, may join the Royal Army Medical Corps, the Canadian Army Medical Corps, or the medical services of the expeditionary forces, without first obtaining a provincial license to practise.

A large number of Canadian doctors have already gone overseas but as the number of men on active service increases,

more and more medical men are required, and during the next few months every qualified man of suitable age, who is fit for the work of an officer in a medical corps will be needed at the front. The British Medical Association has sent out a personal appeal to every member of the profession in Great Britain and the Dominions overseas, and we would impress upon all members of the profession in Canada who are able to give their services the urgent need for medical men that exists in the present emergency. Those who already have attained the age limit prescribed, i.e., physicians and surgeons over forty years of age, are asked to assist the younger men to enlist by assuming part of their work and safeguarding their interests during the period of absence; or they may offer their services to the Imperial authorities for six or twelve months. In the first case, their services will be utilized in England; in the second case, they will be given a temporary commission in the R.A.M.C. and will be sent to such stations as Malta, Gibraltar, or Cairo. An allowance of \$150 is made for outfit, the remuneration is \$5 a day with 43 cents for ration allowance, and a gratuity of \$300 is paid on the termination of the engagement. In the case of those who volunteer for six months the gratuity is \$75 only.

Sir Donald MacAlister referred to the enlistment of medical students of the first three years and their consequent withdrawal from professional instruction. He mentioned the uncertainty existing amongst such students as to whether they should offer themselves for combatant service or continue their studies and so fit themselves for qualified service later on. Thus far the War Office has failed to offer any clear guidance in this matter and efforts are being made by Sir Donald to procure a definite pronouncement which will set the question at rest. Considerable numbers of medical students are employed on minor vessels which are auxiliary to the larger ships, which carry a proper surgical staff and equipment. A surgical probationer is stationed on the smaller craft, who is capable of rendering first aid to the

injured until they can be transferred to the parent ship, and for this work medical students, who have completed their physiological and anatomical studies, and have been instructed in surgical dressing, are preferred. In this connexion, the following statement was made by Sir Donald MacAlister: "The Medical Director-General authorizes me to make it known that any probationer who, after (say) six months' service, desires to present himself for a professional examination, or to resume his studies with a view to qualification, will be granted leave of absence, or be demobilized, at his own request. A less senior student may then be appointed probationer in his place for a similar period of service, and at its expiry he can return to his studies in like manner. By such a rotation of service a succession of students might continue to be employed in war work that is relevant to their future profession and the qualification of none would be unduly delayed. The requirement of the licensing bodies, that every student should act for six months as surgical dresser, may be deemed to be fulfilled by corresponding service as surgical probationer."

A HOSPITAL for wounded Indian soldiers has been established at Brighton, England, by the Indian Medical Service. It has accommodation for two thousand patients, and its personnel includes officers of the Indian Medical Service, assistant surgeons (natives and Eurasians) belonging to the Indian Subordinate Medical Department, Indian nursing orderlies, water carriers, washermen, sweepers, etc. The various castes represented by patients and staff make the preparation of food an extremely complicated affair, for a cook must be of the same or a higher caste than the patient for whom he cooks. Again, a Mohammedan will eat beef, but to the Hindu the cow is a sacred animal; and a sheep must be slaughtered in a circumscribed manner according as it is to be eaten by a Hindu or a Mohammedan. In order that such customs may be adhered to, a special slaughter house has been provided in the grounds of the county abattoir.

Book Reviews

APPLIED IMMUNOLOGY. The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically. With an appendix on Serum Treatment of Hemorrhage, Organotherapy and Chemotherapy. By B. A. THOMAS, A.M., M.D., professor of genito-urinary surgery in the Polyclinic Hospital and College for Graduates in Medicine, and R. H. IVY, M.D., D.D.S., assistant instructor in surgery in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott Company.

In this volume the authors have placed before the general practitioners, as well as laboratory experts, a most lucid exposition of the subject of immunology. No book of its kind has presented the subject so simply, so practically, or so within the scope of the practitioner's time and understanding.

The chapter of fixation of complement gives the reader a very clear understanding of the practical side of the subject, while the explanation of specific bacterial reactions, which is well illustrated, draws attention to the diagnostic and therapeutic uses of this feature of implying immunology in a very satisfactory manner.

We do not think that the positive reaction of von Pirquet's tests present altogether an accurate picture of that test, which is not necessarily negative if a pustule does not appear.

The views of tuberculin therapy are perhaps a little bit optimistic, but the author's experience is probably wider than is that of some other observers. In the appendix there is an excellent chapter on technique, in which the illustrations give a most satisfying explanation of methods.

All in all, the book is to be commended to all those who wish to acquire a ready understanding of the practical applications of immunology.

A FIFTH Universities' Company is now being recruited at Montreal, under Captain S. A. Eve, and eventually will go overseas as reinforcements to the Princess Patricia's Canadian Light Infantry.

Books Received

The following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

THE WORK OF OUR HANDS. A Study of Occupations for Invalids. By HERBERT J. HALL, M.D., and MERTICE M. C. BUCK. Publishers, Moffat, Yard & Company, New York, 1915.

EMERGENCY SURGERY. By JOHN W. SLUSS, A.M., M.D., associate professor of surgery, Indiana University School of Medicine. Third edition, revised and enlarged with 685 illustrations some of which are printed in colours. Publishers, P. Blakiston's Sons & Company, 1012 Walnut Street, Philadelphia, 1915. Price \$4.00 net.

MATERIA MEDICA AND THERAPEUTICS: A TEXT-BOOK FOR NURSES. By LINETTE A. PARKER, B.Sc. (Columbia University), R.N. Publishers, Lea & Febiger, Philadelphia and New York, 1915. Price \$1.75 net.

THE OPERATIONS OF SURGERY (JACOBSON). Sixth Edition. By R. P. ROWLANDS, M.S., LOND., F.R.C.S., ENG., surgeon to Guy's Hospital; and PHILIP TURNER, B.Sc., M.S., LOND., F.R.C.S., ENG., surgeon to Guy's Hospital. With 797 illustrations (40 in colours). Vol. I., THE UPPER EXTREMITY; THE HEAD AND NECK; THE THORAX; THE LOWER EXTREMITY; THE VERTEBRAL COLUMN. Vol. II., THE ABDOMEN. Publishers, The Macmillan Company of Canada, Toronto, 1915.

BULLETIN, YELLOW FEVER COMMISSION (WEST AFRICA). REPORTS ON QUESTIONS CONNECTED WITH THE INVESTIGATION OF NON-MALARIAL FEVERS IN WEST AFRICA. Vol. I. and II. Published by The University Press of Liverpool, 57 Ashton Street, Liverpool, 1915. Price, Vols. I and II, 25s net.

THE MEDICAL PROFESSION OF ONTARIO VERSUS THE IRREGULAR PRACTITIONER

THE following is the statement made by Dr. H. B. Anderson, President of the Ontario Medical Association, before the Medical Commission under the Honourable Mr. Justice F. E. Hodgins.

Your Lordship:

The Ontario Medical Association was organized in 1880. Its ordinary membership consists of regularly qualified, medical practitioners in good standing, resident in the province, or those engaged in teaching or research work in medicine or the allied sciences, in the province of Ontario. It is the Ontario Branch of the Canadian Medical Association. The present membership is about one thousand, and includes the leading practitioners of the province.

Article 3 of the Constitution of the Ontario Branch of the Canadian Medical Association reads:

"Objects of the association:

1. The cultivation of the science of medicine and surgery.
2. The advancement of the character and honour of the medical profession.
3. The elevation of the standard of medical education.
4. The promotion of public health.
5. The furtherance of unity and harmony among its members.
6. To form the connecting link between the members of the profession of the province and the Canadian Medical Association, in accordance with Article 4 of the Constitution of the Canadian Medical Association."

At the outset, may I direct attention to the fact that the legislation passed from time to time to regulate medical practice in Upper Canada, afterwards the province of Ontario, culminating in the laws under which we are now governed, was for the purpose of affording protection to the individual and the community from unskilled, ignorant, medical practitioners and quacks, by whom the country was overrun at an early period in the history of the province. So much was this the case that there was a public outcry and demand for protective legislation. To substantiate these statements, may I submit the following:

"The Medical Profession in Upper Canada, Canniff, p. 26—
Extract from an article contributed by the late Bishop Strachan,
1812:

"The province is overrun with self-made physicians who have no pretensions to knowledge of any kind, and yet there is no profession that requires more extensive information. They comprehend not the causes or nature of disease, are totally ignorant of anatomy, chemistry and botany; many know nothing of classical learning or general science. Where shall you find *one* among them, attending particularly to the age, constitution and circumstances of the patient, and varying his prescriptions accordingly. It is indeed preposterous to expect judgement and skill, a nice discrimination of diseases or a proper method of cure from men who have never been regularly taught, who cannot pronounce, much less explain, the terms of the art they profess, and who are unable to read the books written upon the subject. The welfare of the people calls aloud for some legislative provision that shall remedy this increasing evil; and examination, however, slight, would terrify nine-tenths of the present race."

A type of practitioner commonly found at this period is exemplified by the following extracts:

"Richmond, October 17, 1817—ADVERTISEMENT—This is to certify that I, Solomon Albert, is Good to cure any sore, or any Complaint or any Pains, Rheumaticks Pains, or any Complaint what so ever the subscriber doctors with yerbs or Roots. Any person wishing to employ him will find him at Dick Bells. (Signed) Solomon Albert.

Page 28—"That illiterate and incompetent persons found their way into Upper Canada during the first fifteen years of this century may be gathered from letters which appeared in the *Kingston Gazette*. In the *Gazette* of June 2nd, 1812, is a letter from Gananoque, signed 'Candidus' giving a copy of an account sent to Mrs. John Gould by a 'self-taught physician of this province'— 'The estate of Mrs. J. Gould Dr. To dr. for medsin and attendants whene he was choked with a large peas of butter no meat £3. A second letter, signed 'Credulus' refers to 'certain medical gentlemen who have out of pure charity come into this country from the neighbouring States to cure us of all our maladies.' They do not use opium, or calomel, but charms. He gives an account of the treatment of a tumour *by stroking and using certain words to drive away 'the devil's swelling.'* A third letter is about a shoemaker who went where unknown to practise and who being called to see a case of dropsy pronounced it pleurisy, and declared that 'fleglotomy' was demanded to reduce the body to natural size; but on being exposed took a hasty departure.

"A fourth letter refers to a bill sent in by a doctor, with a deduction of £6 for 'killing your son.' This was because the doctor had carried the smallpox to the son, who died of it.

"The following is an indication that at Kingston, in 1815, the more intelligent public saw the necessity of protection against incompetent men. The *Kingston Gazette* contains the following:

"To the public. *Facilis descensus Avernii*. The Parliament of the province, during the last session, provided in part against the imposition of empirics in medicine. This was not more necessary for the safety of the diseased than the reputation of the faculty.' Then follows an earnest appeal to the public and Parliament against quacks, their danger 'without one ray of science' who 'presume to thrust the created into the presence of the Creator.' Signed 'W.' (Not of the profession he says.)"

It was not a question of conferring unusual privileges on a body of medical men for their own benefit, or of creating a monopoly, but of giving them power to ensure to the people of the province the services of well-educated, properly trained practitioners to attend them in sickness. We believe it, therefore, of much importance

that there be a clear understanding of the chaotic and unsatisfactory condition of medical practice which gave rise to the public clamour for protection, and which resulted eventually in the establishment of the College of Physicians and Surgeons of Ontario.

The Ontario Medical Association believes that the College of Physicians and Surgeons, our universities and other organizations having control of the education and licensing of medical practitioners, have honourably and fairly discharged their duties in the public interest. The doors of the profession always have been and now are open for the admission of any who comply with the common regulations regarding education, training and examinations. In no sense of the word may the profession of medicine in Ontario be considered a close corporation.

The Ontario Medical Association holds that every person before being legally entitled to treat the sick should comply with the same educational conditions; whatever the system of treatment may be, it can be most intelligently carried out by one who is properly educated. This applies alike to preliminary as well as to scientific or professional education.

To understand disease and treat it intelligently necessitates a knowledge of the structure and functions of the body in health, as well as of the various conditions acting upon the body to produce change or derangement of these structures or functions—that is, disease. To be able to understand and treat disease intelligently, therefore, requires a proper training in anatomy, and physiology, by which we learn normal structure and function; in pathology, anatomy and pathological chemistry, by which we learn of the changes in structure and function encountered in disease; in chemistry, physics and bacteriology, in order to understand the conditions acting upon the individual to produce disease, and to acquire information necessary to apply preventive measures, requisite alike to ward off disease in the individual and to protect the public, as in the case of infectious disease.

A study of the signs, symptoms and course of different diseases is necessary in order to be able to recognize them and to diagnose or differentiate one disease from another. Hence, proper clinical training is a prerequisite of *any intelligent plan of treatment*, as it is obviously impossible to apply treatment properly or with safety until one knows what the disease or condition is that he seeks to remedy. These principles of necessity apply with equal force to whatever the mode or system of treatment, which may be deemed most useful or advisable for the relief of the disease, when once it has been recognized.

It follows, therefore, that the same scientific and clinical training is a prerequisite *for all forms of treatment*. The arbitrary belief in any special dogma, system or plan of treatment can in no way relieve one of the necessity for this training in the fundamentals of intelligent practice. The irregular systems of practice do not claim a special form of anatomy, physiology, chemistry, physics or bacteriology. Once the would-be practitioner is properly trained and legally qualified, no restriction is, or should be placed on his freedom to obtain further knowledge in any form of treatment or of the right to practice it within legal and ethical limitations. This is recognized under the medical laws now in force in the province. Only by the acceptance of these underlying principles are equal rights and privileges granted to all, the safety of the public protected and medical science promoted.

In the countries of Europe these principles are recognized as underlying every legalized form of practice. For the state to recognize the right of any to practise medicine without the knowledge to be acquired only by training in the before-mentioned subjects, is to expose not only the individual but the public to grave dangers. The inability to diagnose may allow a patient with a diseased spinal column to be manipulated, producing dislocation, crushing of the spinal cord, paralysis and death; a tuberculous joint may be manipulated and the disease disseminated; an aneurism may be ruptured; apoplexy produced in a patient with high blood pressure or death result from manipulation of a goitre. Massage, manipulation, mechanotherapy, hydrotherapy and other drugless forms of treatment, are recognized and practised as a part of general medicine and require for their safe application the same ability to diagnose and select the proper cases as with medicinal treatment.

The public health would be endangered from any inability, owing to defective training, to recognize diphtheria, typhoid, syphilis, or other infectious disease, which depend for their diagnosis on clinical training and the knowledge to apply modern laboratory methods.

In medico-legal cases and death certification, the inability to recognize the disease being treated or the cause of death would open the door to possibilities too obvious to require emphasis.

Life and accident insurance companies have interests which depend upon the ability to diagnose accurately and manage properly diseases and injuries.

Modern medicine is opposed to the recognition of any special dogma or exclusive theory of practice, because acceptance of such

excludes the necessity for testing out these theories, and the careful investigation and weighing of facts upon which scientific knowledge and practice depend for their advancement. At the same time, it recognizes and encourages the investigation of every form of treatment in so far as it is without danger to the individual or the community.

Provision has been made in the provincial university and in other universities of the province at great expense to the public, to furnish proper education and scientific training which are prerequisite to treatment. The privileges of these institutions are open to all who prepare themselves to take advantage of them.

We believe that the government would stultify itself by expending large sums to equip and maintain institutions to provide proper scientific training if illiterate, inferiorly educated or untrained persons were granted the right to practise.

The Ontario Medical Association, whose members have had to comply with the educational requirements of these institutions and to pass the examinations prescribed to qualify them to practise, is opposed to the admission to practise on different terms of, the graduates of inferior, proprietary institutions of a foreign country. We believe that all should enter by the same door. The report of the Carnegie Foundation (1910, p. 163-6) says of the osteopathic schools of the United States: "The eight osteopathic schools fairly reek with commercialism. Their catalogues are a mass of hysterical exaggerations alike of the earning and curative power of osteopathy." "It is impossible to say upon which score the 'science' most confidently appeals to the crude boys or disappointed men and women whom it successfully exploits. Standards those concerns have none, etc." These are the statements made after an exhaustive investigation by commissioners who were not medical men.

The members of our Association in order to qualify themselves for specialized practice, have had to spend often many years in postgraduate study abroad to extend their knowledge. If those wishing to undertake other special forms of practice have to go elsewhere for training or to extend their knowledge, after graduation in the regular way, they have a similar right and opportunity to do so; and for this no special legislation is required.

May we also point out the claims which the body of regular practitioners have for asking consideration of their views, by reason of the gratuitous medical services which they have always rendered the indigent, and their efforts in furthering preventive medicine and promoting the public health.

At the present time hundreds of the doctors of this province are overseas in the service of their country, and many hundreds of these at home are caring for the needy dependents of our soldiers. We submit that at such a time and in the absence of many from the country, it would be an act of injustice and ingratitude on the part of the province to give legal status to any body of inferiorly trained persons to practise and thus to jeopardize their interests unnecessarily.

In the questions now at issue, the Ontario Medical Association wishes to place itself on record as taking the broadest possible ground in the interests of the community, for the advancement of the science and practice of medicine—preventive as well as curative—as well as for the safety of the sick and ailing. We seek only equal rights for all in upholding those principles which are essential alike for the safety of the sick and ailing, and for the promotion of medical knowledge and practice in all its branches, which principles in this province were established primarily for the protection of the people from the dangers of incompetent medical practice and quackery.

Obituary

THE RIGHT HONOURABLE SIR CHARLES TUPPER, Bt., died October 30th at the ripe age of ninety-four years. Born at Amherst, Nova Scotia, on July 2nd, 1821, he was the son of a Baptist clergyman, of New England stock, a descendant of Thomas Tupper who emigrated from England in 1635. His education was received at Acadia University, and in 1839 he entered upon the study of medicine at the University of Edinburgh, where he graduated in 1843. In 1855 Sir Charles entered the Nova Scotia Assembly as member for Cumberland. He took an active part in the preliminaries to Confederation and became Prime Minister of the province of Nova Scotia. In 1870, he became President of the Privy Council; in 1872, Minister of Inland Revenue; in 1873, Minister of Customs; in 1878, Minister of Public Works; in 1879, Minister of Railways and Canals, and in 1883, High Commissioner in London for the Dominion. In 1887 Sir Charles returned to Canada and for a short period was Minister of Finance; the following year, however, he returned to London. In 1896, he became Prime Minister of Canada. After the defeat of his party, he was

leader of the Opposition until his retirement from public life in 1900. During the course of a distinguished career many honours fell to his share, and Sir Charles Tupper leaves behind him an honourable record and a great name of which Canada will ever be proud. Although it is as a politician that he will be remembered, he practised his profession at intervals at Ottawa, Halifax, and Toronto; he retained a lively interest in the progress of medicine, and assisted in the formation of the Canadian Medical Association.

DR. LESLIE TUTTLE, of Tweed, Ontario, died November 13th. Dr. Tuttle had practised in Tweed for more than forty years. He was sixty-nine years of age.

DR. ALFRED BOWLBY, of Waterford, Ontario, died November 8th, in the ninety-sixth year of his age. Born at Round Plains in 1820, Dr. Bowlby attended the Simcoe Grammar School, and afterwards read medicine with Dr. Park, of Simcoe. He obtained his degree in medicine from New York, and then from McGill University and went into practice at Waterford in 1846, where he continued to practise for almost seventy years, in fact until a few weeks before his death.

DR. ANTHONY FREELAND, of Ottawa, died suddenly November 3rd, in the sixtieth year of his age. Dr. Freeland was born at Quebec in 1856 of Irish parentage. Much of his early life was spent at Burritt's Rapids; later, he attended the Ottawa Collegiate Institute and the Normal School, and for several years was principal of the separate school at Prescott. He then entered Queen's University, from which he graduated as M.D. in 1889, and the following year took up practice in Ottawa. This, however, he gave up about fourteen years ago. He became collector of inland revenue at Ottawa. He was a strong supporter of the French Canadians in the bilingual school controversy.

DR. W. H. CLAPP, of Toronto, died November 20th, at the age of fifty. Dr. Clapp practised at Scarboro and at Toronto, but gave up his professional work some years ago.

DR. WILLIAM THEOPHILUS STUART, of Oakville, Ontario, died November 13th, in the sixty-third year of his age. Dr. Stuart formerly practised in Toronto, and was professor of anatomy

and chemistry at the Ontario Dental College for many years. Dr. Stuart was Surgeon-Major in the 48th Highlanders, and was instrumental in organizing that regiment.

DR. S. A. ST. AMOUR, of Chicago, dropped dead October 18th. He was fifty-three years of age and was a native of Cheboygan, Ontario. He went to Chicago eighteen years ago and had built up a large practice there.

DR. HORATIO L. FOSTER, of Reed City, Michigan, died suddenly November 8th. Dr. Foster was a Canadian by birth and was born in Waterford, Ontario, in 1857. He graduated from the New York Medical College in 1881.

DR. JOHN BRANDON died at Calgary on October 29th, in the seventy-fifth year of his age. Born in the County of Tyrone, Ireland, he came to Canada with his parents in 1852. His early years were spent on a farm in Lambton County; by dint of persistent study, he became a teacher, and some years later was able to enter the McGill Medical College from which he graduated in 1866. He commenced to practise in the village of Ancaster, where he laboured until about four years ago, when he went to Hamilton. Dr. Brandon saw active service at the time of the Fenian Raid of 1866.

DR. LOUIS DUHAMEL, registrar for Wright County, Ontario, died October 27th.

THE HONOURABLE JAMES EDWIN ROBERTSON, M.D., died at Montague, Prince Edward Island, October 19th, in the seventy-sixth year of his age. Dr. Robertson was born at New Peith, Prince Edward Island, in 1840; he was educated at the Charlottetown Academy, and later entered McGill University, where he graduated M.D. in 1865. He became a member of the provincial parliament in 1870, a member of the House of Commons in 1882, and a member of the Senate in 1902.

DR. HOMER CROWE, of Belmont, Nova Scotia, died October 18th. Dr. Crowe, who was in his seventy-sixth year, had been ailing for some time. He was born at Onslow and read medicine with the late Dr. Samuel Muir, of Truro.

DR. ADAM LYND, of Toronto, died September 30th, in the seventy-first year of his age. Born at Aurora, Dr. Lynd graduated from Trinity Medical College and at once went into practice in Parkdale where he continued to practise for thirty-five years. He was greatly interested in municipal affairs and at one time was mayor of Parkdale. A widow, one son, and three daughters survive him.

SENATOR WILLIAM MACKAY, M.D., died at Reserve Mines, Nova Scotia, on Monday, November 8th. Dr. MacKay was born at Earltown on September 11th, 1858, of Scotch parentage; he was educated at Truro and entered upon the study of medicine at Bellevue Medical College, New York, where he graduated in 1873. In the same year he went into practice at Glace Bay and, although much of his time was devoted to political matters, he continued to practise until a few days before his death. In 1874, Dr. MacKay was appointed resident physician to the Lorway, Emery, and Reserve collieries. He is said to have been the first physician who quarantined cases of diphtheria and his system was subsequently applied by the municipal council to the whole of Cape Breton County. In 1888, Dr. MacKay, in association with Dr. Edward Farrell, was instrumental in framing the Public Health Act of Nova Scotia. In 1886, Dr. MacKay was elected to represent Cape Breton County in the legislative assembly and soon became leader of the Opposition, a position which he filled with ability for the ensuing five years. He was defeated in 1890, but re-elected in 1894 and again chosen leader of the Liberal-Conservative party. In 1897 he was again defeated, and in 1912 was summoned to the Senate. His son, Major Daniel S. MacKay, M.D., is attached to one of the Winnipeg regiments in France.

DR. WALTER HUMPHRIES MONTAGUE, of Winnipeg, died of apoplexy November 15th. Dr. Montague was born at Adelaide, Ontario, in November 1858, and was the son of Joseph Montague, a farmer. He commenced a remarkable career as an errand boy in a country store. He succeeded in qualifying himself for a teacher's certificate at the Woodstock College, and afterwards entered the Toronto School of Medicine as a student of that subject, going from there to Victoria University where he obtained his degree. He was admitted to the College of Physicians and Surgeons of Ontario and to the Royal College of Physicians, Edinburgh, and went into practice at Dunnville, Ontario, where he showed an

active interest in the work of the Conservative party. In 1883 he was an unsuccessful candidate for the Ontario legislature, and was first elected to the House of Commons in 1887. The election was voided but he was reëlected the same year, that election also being annulled by the Supreme Court of Canada. In December, 1894, Dr. Montague entered the Bowell administration without portfolio and the following year became Minister of Agriculture, which office he retained under the Tupper government until July, 1896. In 1908, he removed to Manitoba and, in 1913, was appointed Minister of Public Works. On the resignation of the Roblin government some months ago, he, with his colleagues, was indicted in connexion with the investigation into the construction of the Parliament Buildings at Winnipeg. Dr. Montague leaves a widow, two daughters, and two sons, Captain R. J. Montague, who is staff captain for General Ketchen, and Captain F. Montague, A.D.C. to General Turner.

News

MARITIME PROVINCES

DR. A. NOBLE, of Sydney, has been appointed provost marshal for the Island of Cape Breton, with the rank of captain, under the Sixth Division at Halifax. Captain Noble's appointment is in recognition of services rendered to the military authorities during the past fourteen months.

ONTARIO

A LARGE number of cases of measles and diphtheria were reported in the province during the month of October, when the following cases of infectious disease occurred: diphtheria, 310 cases, 13 deaths; measles, 400 cases, 6 deaths; typhoid, 155 cases, 27 deaths; scarlet fever, 57 cases, 3 deaths; whooping cough, 61 cases, 2 deaths; smallpox, 5 cases; tuberculosis, 114 cases, 61 deaths; infantile paralysis, 4 cases, 1 death; cerebrospinal meningitis, 10 cases, 9 deaths.

SEVERAL cases of smallpox, of a mild form, have been reported in the neighbourhood of Dunnville. General vaccination has been

urged for all those who have not been vaccinated within the last seven years and provision has been made for the vaccination of those who cannot afford to pay. All school children have been vaccinated.

DR. DOUGLAS L. EWAN, of St. Thomas, has been appointed associate coroner for Elgin County.

REPORTS of a satisfactory year of work have been submitted at the annual meetings of many hospitals in the province. At the Owen Sound General and Marine Hospital the number of patients treated was 474, and 47 births and 26 deaths occurred; this hospital contains 57 beds. The Smiths Falls Public Hospital, during its sixth year of activity, received 501 patients; 51 births and 17 deaths took place; the net deficit amounted to \$1,352. Five hundred and thirty admissions were made at the Royal Victoria Hospital, Barrie, and 18 deaths and 95 births were recorded; the total number of days of treatment was 12,949, and the financial statement showed a deficit amounting to \$107.34. At the Bowmanville Hospital, 207 patients were admitted; 16 births and 13 deaths occurred. The Galt Hospital admitted 576 patients during the year; the births numbered 64 and the deaths 48; 11,291 days of treatment were given; the financial statement showed a balance on the right side amounting to over \$500. Two hundred and eighty-eight admissions were made and 33 births occurred at the Victoria Hospital, Renfrew. At the Cornwall General Hospital 757 patients received treatment, as compared with 638 during the previous twelve months. The days of treatment numbered 11,735 as compared with 9,853 in 1914. The number of patients who received treatment in the Wingham General Hospital was 135, the days of treatment being 2,003; these figures are slightly in excess of those for the previous year. The report of the year's activity at the Ross Memorial Hospital, Lindsay, shows that 449 patients were treated, including 58 soldiers; 195 operations were performed; there were 22 births and 25 deaths, the total number of days of treatment was 6,382, the daily cost of maintenance per patient being \$1.85. At the General and Marine Hospital, Collingwood, treatment was given to 400 patients; 28 births and 28 deaths occurred; the daily cost of maintenance was 98 cents per patient. One hundred and eighty-nine patients were admitted to the Cobourg Hospital during the past year, 65 operations were performed, and 3,197 days treatment were

given. The hospital work has been much facilitated by the convenient new building with its equipment.

THE name of the Cochrane General Hospital has been changed to "The Lady Minto Hospital at Cochrane." A grant of three thousand dollars has been made to the hospital by the Executive Council of the Victorian Order of Nurses for Canada, with which the hospital is affiliated.

THE Nurses' Home, which has been built in connexion with the Oshawa Hospital, was opened on October 29th.

DR. CHARLES DUNFIELD has been appointed medical officer of health at Parry Sound.

DR. M. F. COGLAN has been appointed acting superintendent of the Kingston General Hospital, in succession to Dr. D. A. Coon who resigned recently.

IT is announced that the Ladies' Board of the Western Hospital, Toronto, intend to erect a memorial building which shall be known as the Edith Cavell Nurses' Home. The necessary amount, which is estimated at \$100,000, will be raised by subscription.

THE following is the list of candidates who have successfully passed the recent examinations of the College of Physicians and Surgeons of Ontario: John David Henry White Barnett, St. Mary's, Ontario; John Reginald Boyd, Meaford, Ontario; Robert McDonald Cairns, Ottawa; Bessie Lawrence Oliver, Waterford, Ontario; Herbert Joseph Conroy, Peterboro; Joseph Daly, Iona, P.E.I.; John Alexander Dougan, Lindsay, Ontario; Leslie Clinton Fallis, Toronto; Harry Cleaver Purvis Hazelwood, Toronto; Roy Hartley Henderson, Toronto; Frederick Herbert Jeffery, London, Ontario; John Edward Kane, Kingston; Joseph Arthur Labelle, L'Orignal, Ontario; David Easton Lang, Toronto; Albert George Ley, Markham, Ontario; Donald Sherwood Lighthall, Picton, Ontario; Oliver John Samuel Little, Seaforth, Ontario; Leicester Bancroft Lyon, St. Ann's Bay, Jamaica, W.I.; Russel G. MacRobert, St. George Mansion, Toronto; Charles Gordon Merrick, Kingston; Henry Knight Mitchell, Port Arthur; Edward Wilfred McBain, St. Thomas, Ontario; Hermann Campbell McCaul, Lakeside, Ontario; Alexander Jamieson McIntosh, Toronto; Thomas Arnold

Robinson, St. Mary's, Ontario; William Lipsett Robinson, Toronto; Thomas Joseph Sexton, Port Dalhousie, Ontario; Issachar Reuben Smith, Toronto; John Alexander Stewart, Brockville; Vernon Harcourt Storey, Port Hope; Frederick Henry Sutherland, Toronto; Wilfred Lorne Tyrer, Barrie, Ontario; Carl William Waldron, Toronto; James Howard Walmsley, Montreal; George Douglas Chown, Kingston; William Henry Godfrey, Toronto.

THE new wing of St. Joseph's Hospital at Port Arthur was formally opened on Wednesday, November 17th. It is a five-storied building, with roof-garden and sun-parlours and has been built at a cost of \$160,000. The first hospital to be erected on the site of the present building was a two-storied building constructed in 1884, which grew out of the hospital ward established the previous year in St. Joseph's Convent for the treatment of patients from the Canadian Pacific Construction Camp. The building erected in 1884 was not completed until 1895, when the name St. Joseph's was given to it. It was enlarged in 1899 and again in 1905.

QUEBEC

A WARM tribute was paid to the work of the Red Cross by Surgeon-General G. Sterling Ryerson in an address recently delivered at Montreal under the auspices of the Quebec Provincial Branch of the Red Cross. Speaking of the enormous quantity of supplies required, General Ryerson mentioned that during the month of June 500,000 wounded passed through one French depot alone. At the present time, the British Red Cross is spending something like \$20,000 a day. The French hospitals are particularly in need of assistance, 900 of which are maintained by the French Red Cross. Three million francs a month is being expended upon assistance to women and children and in Paris alone over 150,000 free meals are given daily. The steep roads, which are often wet and muddy, make it very difficult to use motor ambulances and in future, especially in the winter, only those which are equipped with double rear wheels will be employed.

THE annual convention of the College of Physicians and Surgeons of the province of Quebec took place at Quebec on September 28th and 29th, under the presidency of Dr. Arthur Simard. The sum of one thousand dollars was voted to the Laval Military Hospital.

At the annual meeting of the Dental Association of the province of Quebec, which took place at Laval University, \$250 was voted respectively for the British Red Cross Society, the Canadian Red Cross Society, the France-Amerique Committee, and the Laval Military Hospital.

THE sanatorium at Ste. Agathe has been placed at the disposal of the government for the treatment of soldiers suffering from tuberculosis on their return from the front. At the seventh annual meeting of the Laurentian Society for the Treatment and Control of Tuberculosis, which took place at Montreal at the beginning of November, the secretary-treasurer stated that the operating expenses had been reduced from \$11.34 to \$11.27 a week for each patient under treatment. The charge made is \$8 a week, and the deficit incurred last year, through the difference in these sums, amounted to \$6,000. This was met, however, by private subscriptions. The total debt of the society is \$71,275.28. During the year 129 persons received treatment, 87 of whom were discharged. Since the institution was first opened, 321 patients have received treatment and of these 237 were alive at the time the report was made. Of the latter, 170, or 53 per cent., are perfectly well, and 67, or 21 per cent., are well but must observe care. A special vote of thanks was extended to the citizens of Abbotsford for the gift of one thousand dollars; this money was intended for the purchase of a machine gun, but when the government ceased to accept such donations, the amount was given to the sanatorium at Ste. Agathe.

MANITOBA

It is announced that the Provincial Board of Health will be reorganized at the next session of the legislature. The present body is composed largely of practitioners who seldom are able to meet. It is probable that the new board will consist of three officials; Dr. Gordon Bell, the present bacteriologist, is mentioned as the probable chairman of the board, and Dr. Stuart Fraser as the epidemiologist. An advisory board of four or five practitioners from various parts of the province will also be appointed.

DR. SECORD has been appointed superintendent of the St. John Ambulance Brigade at Winnipeg in succession to Dr. Moorhead, who has joined the R.A.M.C.

DR. D. M. LINEHAM has been appointed physician to the Manitoba Agricultural College.

SASKATCHEWAN

A COMPARATIVELY small number of cases of infectious disease was reported during the month of October in the city of Saskatoon, namely, typhoid fever, 5 cases; scarlet fever, 2 cases; measles, 1 case; chicken-pox, 4 cases; whooping cough, 3 cases; diphtheria, 1 case; pulmonary tuberculosis, 5 cases; erysipelas, 3 cases.

BRITISH COLUMBIA

A REPORT of the work of the St. John Ambulance Association was submitted at the fifth annual meeting of the Provincial Council, which took place at Victoria, under the presidency of Dr. W. J. Brydone-Jack, of Vancouver. The officers elected for the year 1915-1916 are:—president, Dr. Brydone-Jack, Vancouver; vice-president, Rev. E. G. Miller, Victoria; honorary secretary, Mr. William Burns, Vancouver; honorary treasurer, Mr. C. G. Pennock, Vancouver. The number of members of the executive committee was increased from seven to nine. Mr. C. G. Pennock, of Vancouver, and Mr. A. J. Dallain, of Victoria, were appointed to represent the provincial council at the annual meeting of the Dominion Council.

MEDICAL COLLEGES

Queen's University.

THE senate of the university recently passed a resolution to encourage medical students to complete their studies and thus increase their efficiency for military service. The trustees of the university expressed their warm appreciation of the conduct of the students who have given their services to the cause of their country in the present war.

LIEUTENANT-COLONEL W. T. CONNELL, who accompanied the Queen's Stationary Hospital to Egypt, has returned and has resumed his duties as professor of bacteriology and pathology.

ARMY MEDICAL SERVICES

THE following doctors have joined the Royal Army Medical Corps: Dr. K. H. Van Norman, of Toronto, assistant superin-

tendent of Johns Hopkins Hospital, Baltimore; Dr. J. F. Kidd, of Ottawa; Dr. Marr, of Langley Fort, British Columbia; Dr. J. D. Stewart, of Calgary; Dr. Hamelin, of North Battleford; Dr. Harry McDonald, of New Waterford, Cape Breton; Dr. McKenzie, of Woodstock; Dr. T. P. Devlin, of Kaslo, British Columbia; Dr. Ernest Moorhead, of Winnipeg; Dr. Sanders, of Waldo, British Columbia; Dr. Anderson, of Brooks, Alberta; Dr. W. B. Seaton, of Fort Erie, Ontario; Dr. R. T. MacLaren, of Moosomin, Saskatchewan; Dr. R. D. Orok, of Winnipeg; Dr. J. P. MacDonald, of Edmonton; Dr. Geoffrey A. Barss, of Dartmouth, Nova Scotia; and Dr. Racey, of Parkhill, Ontario; Dr. J. R. L. Christian, of Edmonton; Dr. E. F. Dunham, of Govan, Saskatchewan.

DR. D. E. STAUNTON WISHART, R.A.M.C., is convalescing from an attack of pyrexia in the Bulkely Convalescent Home, Alexandria. He has been mainly occupied on a "drifter", in conveying wounded and sick from the peninsula to hospital ships.

DR. J. ARTHUR SUTHERLAND left Toronto in October expecting to enter the service of the French Army Medical Corps. Dr. Sutherland has been in practice in British Columbia and Alaska.

DR. W. E. DEAN, of Toronto, has joined the staff of No. 4 General Hospital.

It is announced that Major F. B. Carron, M.D., has been appointed supervisor of military hospitals in England. Dr. Carron is a graduate of McGill University and was in practice at Brockville, Ontario, before leaving for England with the second contingent C.E.F. He saw active service in the Boer War.

DR. A. J. FISHER, of New Liskeard, has been appointed captain in the Canadian Army Medical Corps and has left for active service in Europe.

DR. J. R. GOODALL, of Montreal, has been appointed medical officer of the Second Brigade of the Canadian Expeditionary Forces, which comprises the 4th, 5th, and 6th Canadian Mounted Rifles now in France.

NO. 2 CANADIAN STATIONARY HOSPITAL, under the command

of Colonel Shillington, was removed from Le Touquet to Outreau, near Boulogne, where it was quartered in a building which formerly was a large girl's school. Extra accommodation was obtained by the addition of huts and the unit consists of eleven wards, named respectively, Quebec, Ontario, Nova Scotia, New Brunswick, Prince Edward Island, Manitoba, Saskatchewan, Alberta, British Columbia, Yukon, and Ottawa. It is now reported that the unit has been sent to Serbia. Eight thousand patients have already passed through the hospital, of whom five hundred were Canadians. The number of deaths has been small, forty-four in all. It is announced that Colonel Shillington has been appointed A.D.M.S. at Bramshot, near Aldershot, and that the unit is now under the command of Lieutenant-Colonel J. T. Clark, of Quebec. It is announced also that Major H. Elliott, of Cobourg, has joined the staff of the hospital.

Lieutenant J. W. Richardson, R.A.M.C., of Calgary, has returned on leave of absence.

COLONEL MCPHERSON, of Toronto, has returned from France to England and is in charge of Shillington House, a Canadian Convalescent Home at Uxbridge. Another convalescent home which is under the direction of the Canadian authorities is the Granville Hotel at Ramsgate, which is in charge of Colonel Watt, of Winnipeg.

CAPTAIN B. S. HUTCHESON, of Chicago, has been appointed medical officer to the battalion of American-born of Canada, which is in process of formation.

DR. E. V. FREDERICK of Campbellford, Ontario, has been appointed assistant senior surgeon at No. 1 Stationary Hospital, C.E.F., which is now stationed on the Isle of Lemnos.

THE following promotions in the C.A.M.C. are announced from London: Lieutenant-Colonels Lorne Drum and George Septimus Rennie to be temporary colonels; Majors John Thomas Clark and Campbell Keenan to be temporary lieutenant-colonels: Captains George Rowe Philp, John McCombe, Reginald Sterling Pentecost, Francis W. Wilson, Robert Wilson, and Charles Young to be temporary majors. Nursing sisters to matrons: Edith Campbell, Eleanor Charleson, and Violet Nesbitt.

NO. 5 GENERAL HOSPITAL, C.E.F., which left Victoria in August under the command of Lieutenant-Colonel E. C. Hart, is at present at Shorncliffe, where it has replaced the University of Toronto Military Hospital, No. 4. The arrival of the unit in England was followed by a temporary distribution of its personnel. This was done for the purpose of giving employment to the nurses and non-commissioned officers until the hospital is established in permanent quarters, and opportunity of experience in British hospitals to members of the staff. As was the case with the McGill Hospital, No. 3, the personnel will be reassembled before the unit leaves England. Captain K. D. Panton, who went to the front with the 3rd Field Ambulance from Vancouver, has been transferred to No. 5 General Hospital, with the military rank of Lieutenant-Colonel.

THE following is the personnel of the Saskatchewan Military Hospital recommended by the Medical Council of the province, subject to confirmation by the Militia Department: Officer commanding, Major H. E. Munroe, of Saskatoon, who is at present on the staff of No. 1 Stationary Hospital, C.E.F.; Major Irving, of Yorkton, and Major Meek, of Regina; Captains W. Millar, of Battleford, Coles, of Regina, H. A. Stewart, of Saskatoon, Wark, of Moosomin, Craig, of Davidson, Creighton, of Estevan, Scott, of Moose Jaw, Harvey, of Regina, and Armitage, of Saskatoon; registrar and secretary, Lieutenant S. H. Braund, of Regina; quartermaster, Lieutenant P. H. Salmond, of Regina; dental surgeon, Lieutenant Dewitt, of Regina; dispensers, Lieutenants J. H. Thomson, of Moose Jaw, and R. A. Patrick, of Yorkton; matron, Miss Jean Urquhart, of Regina. The entire equipment for the unit has been ordered and probably will be assembled at a point in England. The funds for this purpose have been subscribed in the province of Saskatchewan, and already, although all the amounts have not yet been received, over \$24,000 has been contributed.

THE Laval Stationary Hospital, No. 6, is to be increased to a General Hospital of one thousand beds.

It is announced that the University of Toronto Hospital, No. 4 General Hospital, has been sent from Egypt to Salonika.

COLONEL G. G. NASMITH has returned to Toronto on leave of absence, at the request of the provincial government

to complete some important investigations. Colonel Nasmith is the director of the bacteriological laboratories of the Toronto Department of Health. He accompanied the first Canadian Division to France, where he has been in charge of the water supply and sanitation.

CAPTAIN JAMES ROBERTS, of Hamilton, is in charge of a base hospital at the Dardanelles. He has recovered from his recent illness.

LIEUTENANT H. F. MACKENDRICK, R.A.M.C., of Galt, Ontario, who was stationed in France with the 31st Casualty Hospital, B.E.F., has returned on leave of absence owing to the illness of Mrs. McKendrick.

DR. C. C. BELL, of Chatham, has accepted the appointment of assistant director of medical services at London, Ontario.

DR. D. R. MOORE, ex.-M.P.P., of Stanley, New Brunswick, has volunteered for active service. Dr. Moore was formerly medical officer of the 71st Yorkshire Regiment.

DRS. CARL H. MARTIN and Frederick J. Livingston, of Hamilton, and Dr. E. Sheffield, of Edmonton, all members of the R.A.M.C., are at the Dardanelles.

DR. J. J. FIELD, of Regina, is attached to a base hospital at Eastbourne, England.

THE Honourable Mrs. Graham Murray has placed her London house at the disposal of the Canadian Red Cross Society, to be converted into a home for Canadian nurses who return from the front.

DR. J. F. ADAMSON, R.A.M.C., of Edmonton, is attached to the Floriana Hospital at Malta.

A MILITARY medical board has been organized in Simcoe County, Ontario. The county has been divided into three districts; Dr. Lewis, of Barrie, will have charge of the first; Dr. Wallbridge, of Midland, of the second; and Dr. Mackay, of Collingwood, of

the third. The board will exercise the functions of a court of appeal, before which a candidate for military examination, rejected by the local examiner, may go.

CASUALTIES

In hospital

DR. S. S. KING, R.A.M.C., of Hampton, New Brunswick (Dardanelles).

Wounded

LIEUTENANT J. B. WOODROW, R.A.M.C., of Alberta.

THE following memorandum to regimental medical officers was recently issued by Lieutenant-Colonel J. T. Fotheringham, A.D.M.S., Second Canadian Division.

Evacuation of Casualties. One of the most important of the duties of a medical officer with a regiment is to organize and superintend the utilization of the means for the rapid and thorough clearing of the wounded from the area of operations. This is important for the following reasons:

1. The early treatment of wounded provides for early return of men to the fighting line by diminishing the chances of infection and shock from prolonged exposure.

2. It increases the facilities for manœuvring.

3. The depressing effect of numbers of unattended wounded on the morale of the battalion is largely diminished.

Success during action will be facilitated by careful preparations beforehand. In making these preparations the regimental medical officer will consider means at his disposal under the following heads:

1. The Regimental Medical Detail.

2. The Regiment.

3. Field Ambulance.

1. Regimental Medical Detail: This detail should be very carefully trained in first aid, special attention being devoted to the question of hæmorrhage and alleviation of pain. The entire detail should be thoroughly acquainted with the technical equipment and its uses. Since they will often be separated from the medical officer and forced to use their own judgement in choosing ways and means of handling cases no trouble should be spared in their train-

ing. They should be taught to use their own judgement and common sense in choosing the time and method for removing patients from trenches and the field. The influence of topography on the choice of aid-posts should be thoroughly gone into with them. Map reading is a subject in which they should be carefully trained.*

2. The Regiment: The regimental medical detail alone is quite inadequate to handle the situation which develops in the course of an ordinary general action. The regimental medical officer will bear in mind that his detail will in all probability be diminished in numbers already weak. In replacing these casualties he will look in the first place to the battalion from which his original detail was drawn. Since regimental stretcher bearers cannot be efficiently trained on the spur of the moment the efficiency of the reinforcements should concern the regimental medical officer when he is training the battalion in the use of the first field dressing and first aid methods. The more men in the battalion who are trained in this the easier it will be for him to replace and supplement his regimental detail when the exigencies of an action may demand it.

(a) Extra means of transporting wounded from the field will be found in the regimental transport. The manner, time and place in which it is used should occupy the attention of the regimental medical officer. The empty supply column of the regiment is a valuable means for removing cases from the field.

(b) Extra bearer parties. By consulting with the commanding officer of the unit the regimental medical officer will obtain information as to men available for this work. They have been drawn from the transport and the quartermaster's departments. Stragglers have formed valuable auxiliary bearer parties during action, and will be gathered up by the regimental medical officer as he finds them, placed under non-commissioned officers and put to work pending return to companies.

3. Having exhausted the means at his disposal in the battalion he will consider assistance from outside. He will look to the field ambulance for further assistance. This brings up the question of communication. Immediately on establishing his aid-post he will get into touch with the nearest dressing station of the field ambulance through the following channels:

- (a) Through brigade headquarters via battalion headquarters.
- (b) Direct by orderly or signaller.

* See also memoranda of assistant director of medical services, July 12th, and earlier data on training in regimental duties.

- (c) Through assistant director of medical services office.
Once established, communications will be maintained.

The regimental medical officer will bear in mind that the battalion area is not the place for the field ambulance personnel to be working in. Consequently when he finds it necessary to call upon the field ambulance for assistance in bearer parties and transport he will find it of advantage to shift his aid-post farther forward, thus shortening the distance patients have to be carried from the firing line.

Reports. The regimental medical officer will make the following reports to officer commanding battalion, and medical officer in charge of advanced dressing station of field ambulance:

- (a) Exact time and place a regimental aid post is opened or closed illustrating by sketch or reference to map. When opening auxiliary aid-posts he will state time at which other aid-posts will cease to receive patients and will leave an orderly at the post to be closed until that time.

- (b) He will report to medical officer in charge of advanced dressing station supplies required, bearing in mind that it takes from one to two hours for them to reach him.

- (c) Prospective casualties and nature of action contemplated or taking place to medical officer in charge of advanced dressing station.

- (d) Time at which first casualties arrive at aid-posts, to medical officer in charge of advanced dressing station.

- (e) Any information affecting transport or march between his post and advanced dressing station, e.g., destruction of bridges or roads, alternative routes of approach to aid-post illustrating by sketch.

The use of ambulance orderlies and drivers for carrying reports to advanced dressing stations will be made. These reports will be sent in writing.

Topography. Careful study of the question of topography will repay the regimental medical officer. A knowledge of this subject will provide him with information on the following points:

1. Roads. Their character, communications, etc.
2. Obstacles.
3. Cover. By examining the contours in relation to the firing line he will discover those routes which are under fire from various arms.
4. Position of woods and buildings, etc., which may furnish protection or obstacles.

The study of his map may be supplemented by personal observation of the ground behind his own lines. The ground in front that is in possessions of the enemy, he will have to study with a view to providing future aid posts solely by aid of his map and glasses.

Tactics. Since the tactics of the medical officer are dependent upon those of his unit he will make himself acquainted with the latter. The intention of the commander of the battalion is important to the medical officer since it will enable him to examine and provide for the establishment of aid-posts in new areas. The medical officer should go to officer commanding unit for all available information about battalion, brigade and divisional plans of action.

Collecting during the action. The extent and manner in which this is done depends on whether the action is an offensive or defensive one; whether it is in trenches or in the open; whether it is in the daylight or in the dark.

During the day when open fighting is in progress the medical officer's movements from point to point will be restricted by the ground and nature of action. He will remember that he is present at the action for the purpose of rendering aid to the whole battalion and will take steps to ensure that he is not in a position where his aid will be available to only a company or platoon. The majority of cases which reach him will be those able to walk or crawl and a few lying down cases from the immediate vicinity of his aid-post. He may be urged by others to go to places which will entail undue risks but he will be governed entirely by the needs of the battalion. The personal opinion of others, unless it coincides with his own judgement of the necessity for exposing himself, will be entirely disregarded. The individual officer or man is not to be succoured at the expense of the whole battalion.

During the day, when trench fighting is in progress the presence of the medical officer in the trenches is governed by the following consideration:

1. Whether trenches are linked up so that he may proceed to any point which his battalion is occupying, provided by reasonable cover.
2. Whether communication trenches with battalion headquarters are available.
3. The facilities for treatment other than that given by first aid men in the trenches are limited by space and equipment available. An efficiently-trained medical detail and battalion should not require the presence of the medical officer in the trenches each hour during the day.

During the night whether in open or trench-fighting, the medical officer will be fully occupied. The lying-down cases will be brought in; the darkness will provide him with cover permitting him to move from point to point, and attend to those cases which require his attention before moving; the cessation of the advance which often occurs at the onset of darkness and the straggling consequent on the increased difficulties of maintaining touch, will provide him with additional assistance in bearer parties. In using these stragglers he will bear in mind the primary purpose of their presence on the field, namely to fight, and will not detail them for carrying patients to points at a distance from the firing line which will make their return problematical. The thorough searching of the field, particular attention being paid to hedges, ditches and ravines, will be carried out.

At night the medical officer will take steps to replenish his supplies of dressings, food, water and morphine. He will replace casualties amongst his own bearers, reporting the new addition to his officer commanding.

The regimental medical officer's part in collecting after an action will depend on whether the action has been a successful one, and an advance has followed or not.

A successful action. (1). The regimental medical officer with his detail will remember that his place is with his regiment, and will follow it accordingly. He will notify the medical officer in charge of advanced dressing station of the position of his wounded and aid-posts, and will move on with his battalion. This information should be rendered in writing, illustrating by sketches if necessary, and reference to map. In sending reports to advanced dressing station and battalion headquarters, he will inform them of the steps he has taken in conjunction with, and the information he has rendered to, the medical officer in charge of advanced dressing station in order to avoid unnecessary duplication of orders and personnel detailed.

An action in which success is not followed by an immediate advance calls for little change in position.

An unsuccessful action, if not followed by a retirement produces little or no change in plan. If followed by retirement, the medical officer will endeavour to clear his patients, but when he finds that capture of himself and personnel is in prospect he will leave sufficient supplies of food, water and personnel to ensure the welfare of the wounded and will withdraw the remainder of his detail and equipment and carry out his duty with his battalion.

From the above notes the regimental medical officer will see that the greatest emphasis and care should be spent on training. Brilliant results are not obtained by plans evolved on the spur of the moment. Plans must be based on a wide knowledge of the ways and means utilized by all branches of the service to obtain their maximum efficiency. Details ignored may spoil any plan. Care of one's instruments is necessary if one is to obtain the best results. Trouble spent on training one's men and whetting their appetite for information will produce a keenness for their work and good results that will cut many a Gordian knot. To the officer in charge of medical details few things will produce such good results as will his personal interest in and care of his detail. Next to the care and attention of the wounded should come the care and attention to his detail. See that they are well fed and trained when well, and looked after when ill. Set them the example of unselfishness and loyalty, and they will make you sure of your results at any time and place. The greatest asset an officer can have is the respect and loyalty of his men.

Canadian Literature

ORIGINAL CONTRIBUTIONS

The Canadian Practitioner and Review, September, 1915:

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| The treatment of arthritis | E. Seaborn. |
| The clinical aspects of intestinal obstruction | A. R. Gordon. |

The Canada Lancet, October, 1915:

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| Tuberculosis and the bacteriology of everyday life | Sir James Grant. |
| The work of the observation hospital for mental cases | Harvey Clare. |
| Morphine scopolamine narcosis in labour | J. G. Gallie and W. A. Scott. |

The Western Medical News, October, 1915:

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|---|-----------------|
| Two case reports | J. W. Turnbull. |
| Maternity and the handy woman | J. A. Rose. |
| Intercostal thoractomy in empyema | H. Lilienthal. |

Medical Societies

ONTARIO MEDICAL ASSOCIATION

THE thirty-sixth annual meeting of the Ontario Medical Association will take place in Toronto on May 30th and 31st, June 1st, and June 2nd, 1916, in conjunction with the annual meeting of the Provincial Health Officers' Association.

COLLEGE OF PHYSICIANS AND SURGEONS OF ALBERTA

THE Council of the College of Physicians and Surgeons of Alberta was appointed on July 7th, last, for a period of four years. The members of the Council, who are representative of the seven districts of the province, are, Dr. John Park, of Edmonton; Dr. F. W. Crang, of Edmonton South; Dr. R. D. Duggan, of Killam; the Honourable R. G. Brett, of Banff, Lieutenant-Governor of the province; Dr. R. D. Sanson, of Calgary; Dr. G. E. Learmonth, of High River; and Dr. W. S. Galbraith, of Lethbridge. The first session of the council was held at Edmonton on Thursday, October 14th, and was devoted almost entirely to business. The election of officers resulted as follows: president, Dr. F. W. Crang, of Edmonton South; vice-president, Dr. W. S. Galbraith, of Lethbridge; registrar and treasurer, Dr. C. W. Field, of Edmonton, Executive Committee: Dr. Crang, chairman, Dr. Sanson, Dr. Duggan, and Dr. Park. Finance Committee: Dr. W. S. Galbraith, chairman, the Lieutenant-Governor, and Dr. Crang. Discipline Committee: Dr. Park, chairman, Dr. Sanson, Dr. Learmonth, and the Lieutenant-Governor. Legislative Committee: Dr. Crang, chairman, Dr. Learmonth, Dr. Galbraith, and Dr. Duggan.

LAMBTON COUNTY MEDICAL ASSOCIATION

THE Lambton County Medical Association met in the Public Library at Forest, on October 13th. Dr. P. McG. Brown, of Camlachie, presented two very interesting cases to the Association;

1. Petit Mal.
2. Pulmonary Tuberculosis.

Dr. A. J. Grant, of Thedford, read a paper on the use of Pituitary Extract in Obstetrics, which was followed by a lively discussion.

The next meeting will be held in Sarnia, in February, 1916.

